Original Mr Hunter's Lecture on
Chemistry.

Heat is a source that Nature has given
us, which we can force our bodies
to receive the nature of Mrs. — Heat is
most delightful expansion, Heat is
a power of Attraction. Bodies enlarge
by heat. The laws of Heat are viz 1st
1st Heat constantly removes from a Lower
body to a colder to restore the Equilibrium
2d Communication equal time
[illegible] to the density of Heat
[illegible] according to the difference
[illegible] The Expansion [illegible] vacuum
[illegible] of Heat [illegible]

[illegible] compact a body the better [illegible]

Cold is a positive quality & derived from the
Heat. Cold is negative & is the absence or diminution
of Heat. There is no body naturally so cold that it
does not or cannot afford any Heat. — A
Mixture of Snow & Aqua fortis and that
40° below 0. We can come at the knowledge of p
only by considering its effects. Heat adds to
weight of bodies in expanding them. In the Arc
circle Pa. Petersburgh it stood 65° below freezing; In Siberia 152° be
freezing at Petersburgh it stood 40° below freezing. By mixing
Snow & Aq. fort. it fell 35° & 320° below freezing & it
freezing.

4. Two bodies of the same matter & form b
different in quantity, heat & cool in pro
portion to their diameters. Latent heat
enters into the formation of the particles of
bodies & is not obvious to our senses; but Sen
sible heat occupies the spaces between the
particles & is obvious to our senses.

The most equal Heat is that communicated by the Balneum Mariæ. Heat pervades all bodies. Air does not conduct Heat, only in proportion to the quantity of Heterogeneous Particles with which it is mixed. Water conducts Heat. There are conductors of non-conductors of Heat as well as Electricity. The difference of climates depends, 1st on the qualities of the Soil; 2nd cultivation; 3rd Particular Winds from certain quarters as Mountains &c. as the Harmattan, Samiel Sirocco Winds; 4th Vicinity of great bodies of Water; 5th State of water on the surface of the Earth; 6th Perpendicularity of the Sun; 7th The presence of Clouds. Heat flies upwards from the Earth & Water. Islands & Land near the Sea are warmer than Continents, because the Heat flying from the Sea in greater quantity than Land warms the Atmosphere. They are also cooler in Summer because the rays of the Sun are intercepted by clouds, which are mostly in greater quantity for good & plain reason. Transparent bodies transmit Heat & Light. Valleys are warmer than Mountains, because

the air being denser over the former by the
intimate pressure of the superincumbent
Mass & a well known law of gravitation,
the Heat is better absorbed & retained, both
from the Sun directly, & indirectly from the
larger surface of the Earth, from which it
Heat escapes. Or Vacuum the Heat flies
equally from all sides of a heated body.
Many Phenomena are accounted for by the
Heat flying upwards, & the more dense
layers of air falling down & thus conti-
nually renewed. Ice & other cold bodies descend
Heids are heated sooner near the bottom.
Water in the Seas & Lakes is much warmer
than in Rivers or Shallow places; in the
former the warm water rises to the top
from the bottom, whilst the cold & dense
sinks to the bottom on which account
they hardly ever freeze; the air is warmed
by it. The air near the Earth when rare-
fied always flies upwards & its place is
supplied from above by the denser air. The
Air receives its warmth from the Earth
& the action of the Sun on the aqueous
particles contained in the air, hence the
Atmosphere nearest the Earth is always

The freezing & expanding of water by freezing is not owing to its absorbing air, as it expands by freezing & has the appearance of air bubbles on being deprived of air. The air bubbles being pierced exhibited no Phenomena proving the presence of air in them. The appearance of Ice is rough & angular. Snow is of a radiated star like appearance. Snow contains no saline matter, as it is the pure of water & very homogeneous. The reason that snow expands after being melted is because the particles touch all angles.

Steam is proved to be expanded by its requiring a heat to fast two when heated than when cold. The contraction when cold is proved by the Gooseberry method of sealing casks & by the French Burst. 2d. Water put into a tube & immersed in water water will rise. 3d. A bladder partly filled with air & placed before a fire will burst by the expansion of the elastic air.

Water is proved to be compressible by dividing in a glass tube, or taking off the pressure of the Atmosphere. The Accuracy of Thermometers depends on the 1st thinness of the glass, 2d figure of the bulb; & 3. the uniformity of the cylindrical tube. The size of the Bulb should be directly as the size of the stem. The Bulbs of Thermometers should be black to conduct the heat best.

Thermometers are graduated by plunging into snow, measuring the degree height of it & then in Boiling water, measuring its height & marking the gradations between them.

Lect. 3. All bodies are expanded by Heat. Water expanded by freezing. The expansion of Ice is owing to the tendency of the particles of Ice to touch at an angle of 60°. Particles of Metals touch at angles. Wrought Iron is more compact & malleable than cast by reason of the particles being brought closer into contact & their disposition altered by the hammer. No body contains a definitive quantity of Heat. Expansion is manifested on 1st Solid bodies as Metals. 2nd Incelastic fluids as Water, Oil &c. 3. Elastic fluids as Air. Expansion & contraction are the consequences of Heat & Cold to almost all bodies. Iron & Regulus of Antimony expand by cooling after being melted. Polished bodies reflect almost all the Heat, & rough bodies absorb it more. Thermometers are Instruments used to ascertain the degrees of Heat & of Cold. They are made of Air, Alcohol, Oil, Water, Tin & Mercury. The bulb of a Thermometer should be an Oblate Spheroid. Dr. Mr. Wilson of Edinburgh found that Air in the tube made no difference. The bulb shouldn't be too bright. In the graduation of Thermometers the heat of boiling water or 212° is the highest, & that at which Water freezes or 32° is the lowest.

Tendency expand. and Water

Gas has been frequently congealed.

Water freezing in a globe of an inch Diameter exerts a force equal to 27700.

Ice requires too large a scale. Oil is too easily congealed, & rallies the tube.

Iron & Water take the same degree of Heat to Lead them equally; which is the reason that Iron heated red hot is used plunged into water to ascertain the degree of Heat the iron contains.

A piece of Ice blown upon by bellows will melt sooner than if it was not blown upon.—

The imperfections of Thermometers are two viz. 1st. Too much time is required for ascertaining the degrees of Heat & Cold. 2nd They are limited i.e. there are degrees of Heat too great to be measured by them.

Boiling water

[illegible] make [illegible]
[illegible] change [illegible]
[illegible] cold [illegible] becomes [illegible]
[illegible] no [illegible] temperature [illegible]
[illegible] originally [illegible] greater [illegible]
[illegible] many other rare [illegible]
[illegible] Polar circle. [illegible]
[illegible] make [illegible] great degree [illegible]
[illegible] What [illegible]
[illegible] The cold caused by the [illegible]
[illegible] following to the [illegible]
[illegible] latent by the [illegible]
[illegible] into fluid. Lect. 4. [illegible]
[illegible] motion; become [illegible]
[illegible]
[illegible] would be by [illegible]
[illegible] the air
[illegible] also increases the [illegible]
[illegible] & consequently [illegible] Air [illegible]
[illegible] Thermometer [illegible]
[illegible]
[illegible]
[illegible] Thermometer [illegible]
[illegible] degrees [illegible]
[illegible] heat. An ounce of [illegible]
[illegible] when [illegible] freezing [illegible]
[illegible]

Some bodies are made more easily penetrable, and yet other, which are called elastic.

In expansion there is a regular increase of bulk, in proportion to the degree of heat applied; but in contraction the transition is sudden, and they seldom appear in an intermediate state between fluidity and ~~expansion~~ solidity. Some calcareous details excepted. By reason of contractibility afterwards of being restored to their former state.

Some white stones retain the action of fire on account of their not conducting heat.

[illegible] perfectly [illegible]
[illegible] condensation. But the
[illegible] gradually
[illegible] become fluid.
[illegible] evaporation [illegible]
[illegible] &c. Fluidity is the natural
state of Stones, Metals, &c.
[illegible] Pressure, Strength, Elasticity,
[illegible] &c. Fluidity [illegible]
[illegible] remedied by Shaking,
[illegible] melting or by standing on a [illegible]
[illegible] or the like. Fluidity is the natural
state of Stones, Metals, &c.
[illegible] Fluidity is the reduction of a solid body to a [illegible]
[illegible] Fluid properties are not [illegible]
[illegible] Distillation is the reduction [illegible]
[illegible] transparent [illegible]
[illegible] Water rarefied [illegible]
[illegible] Fluid is [illegible]
[illegible] Vapour [illegible]
[illegible] Fluid [illegible]
[illegible] Fluid [illegible]

[illegible] Between the parallels
[illegible] the heat of a common [illegible]
[illegible] made from red lead [illegible]
[illegible] 600° F. [illegible] 5 lb of red lead, 550° [illegible]
[illegible] 650° [illegible] made red lead [illegible]

[illegible] 25° below [illegible]
freezer. 150° [illegible] of the [illegible]
[illegible] the [illegible] [illegible]
[illegible] generally [illegible]
[illegible] increased in proportion to the [illegible]

[illegible] exposed to the absorption
[illegible] water in a state of Heat into a kind
of [illegible] magnitude freezing water
[illegible] agitated, because the [illegible]
[illegible] the [illegible] It moved [illegible]
[illegible] the [illegible] nature of [illegible] [illegible]
[illegible] the [illegible] air [illegible]
[illegible] nothing [illegible]
[illegible] Weather the Lower very cold [illegible]
[illegible] better just before Boiling than when
it Boils, because then the Heat increases [illegible]
[illegible] Boiling [illegible] Vapour [illegible]
[illegible] fired by the air [illegible]
[illegible] a greater degree of Heat [illegible]
[illegible] being made red hot at the [illegible]
[illegible] bottom of Fluids [illegible]
[illegible] which the Ebullition [illegible] more dense
[illegible] be subject to the Other [illegible] Sublimation
[illegible] Evaporation [illegible]
[illegible] the [illegible] [illegible]
[illegible] it [illegible]
[illegible] than Pot. Pot. [illegible] Spirit [illegible]
[illegible] Liquid. The more dangerous
[illegible] than
[illegible] Sublimation are the
[illegible] of Evaporation in the former the
[illegible] of the [illegible]

[illegible] stream of air also passes into the [illegible]
[illegible] some [illegible] [illegible]
[illegible] of their [illegible] [illegible]
[illegible] requires more [illegible] [illegible]
requires some [illegible] of time to dissipate
[illegible] into vapour that it required [illegible]

[illegible]

[illegible] from the [illegible]
operation of sweat is always in proportion
to the degree of heat the body is exposed to,
the [illegible] [illegible] in the body by the evaporation
of the fluid, is proportional to the [illegible]
[illegible] are some of the most [illegible]
[illegible] all bodies are capable of [illegible]

[illegible] heat

[illegible] are accounted for [illegible]

[illegible] sensible. But in [illegible]

[illegible] Metals are alone generally [illegible] expanded; other substances [illegible] degrees. Water does [illegible] by freezing. Water will [illegible] by the evaporation of [illegible] fixed in the water.

Sect. 5. The head of the human body is in [illegible] all climates under the equator, or under the [illegible] from 76° to 100°. The skin is [illegible] without injuring the health. In Cairo [illegible] to 126°. In Calcutta [illegible] the body [illegible] dart. The bodies of animals [illegible] Dead [illegible] shower with vapour [illegible] of [illegible] fixed [illegible] accounted [illegible]

[illegible]

The Inflammation is not so general, but suffered in a class of bodies called Inflammables. These are those which when [illegible]

Even V.s & A are said to have a resistance in the principle of inflammability is not the same in all bodies. It is called Phlogiston, it is pure principle & cause of flame, it is not the same as Electric fire, light &c. it breaks, liquefy, calcination, it is the same Metals undergo by absorbing Phlogiston. The calces of Metals are heavier than in their metallic state. Phlogiston with Oil will evaporate in a degree of Heat below 300°.

[illegible] Figure [illegible] Powder, [illegible]
[illegible] Wood, which [illegible]
[illegible] a total revolution. [illegible] Air is [illegible]
[illegible] Elastick. That is the grand [illegible]
[illegible] Properties of Nature. By it we are
[illegible] for Air now, that the Gravity of the Air
[illegible] Fluidity of all bodies in Nature
[illegible] Fluids. Mixture, is the union of
similar [illegible] bodies. 1. Bodies by combination
[illegible] a diminution in weight. 2.nd The volatile
[illegible] 3 They burn according to the pure
[illegible] of the air; 4 They burn for a certain
[illegible] in a given quantity of air; that is
[illegible] sufficiency of air is absolutely [illegible]
[illegible] Lecture. They in [illegible]
[illegible] Bodies contain Light, or
[illegible] were abstracted from the air, it
[illegible] become a solid, concrete mass.
[illegible]
Chemical
[illegible]
[illegible] liquid mixtures.

Bodies are said to effervesce, when, by reason of their mutual action, a great volume of impalpable matter is set free, as in mixing Oil of Vitriol with Volatile Salt of Ammonia or Spirit of Sulphur with Volatile Salt of Ammonia.

Fermentation is the solution of a solid in a cold menstruum.

The solid body is termed the ferment, the menstruum the leaven.

[illegible] Jesus [illegible]

[illegible] terrestrial

[illegible] celestial is the simple

[illegible] Evil no chance of happiness is

[illegible] possible could it take place; consequently

more than one body can be right since in no

[illegible] the creation of one [illegible] could

[illegible] be any [illegible] perfect

[illegible] no more [illegible] shall be

[illegible] of the redemption of fallen [illegible]

[illegible] bodies [illegible] consequence [illegible]

[illegible] of [illegible] the head of [illegible]

[illegible] inferior; [illegible]

[illegible] consequence but for a short time. [illegible]

[illegible] bodies being. In Corruptible [illegible]

[illegible] returned again into body. Be-

[illegible] eternal happiness be in [illegible]

[illegible] celestial. Immaterial, [illegible]

[illegible] body by Divine Silver. [illegible]

[illegible] respectively their [illegible] head

[illegible] the agitation of their [illegible]

[illegible] only in [illegible]

[illegible] wherein [illegible] of

[illegible] be [illegible].

Decombustion is the ~~disunion~~ or separation of the component parts of bodies. Chrystalization is the concretion of a body into a certain in which it is shaped & assumes more or less transparency regular form. Precipitation is the separation of a dissolved body from its menstruum by the addition of another body. Cohobation is the returning of a liquor, distilled from any substance, back again upon the remaining mass, & distilling it again.

[illegible] their attractions
[illegible] other & repulsion
[illegible] mutual attraction, the
[illegible] experience [illegible]
of permanent, preserved [illegible]
[illegible] the separation of the [illegible]
[illegible] [illegible]
[illegible] purpose [illegible] [illegible]
[illegible] & evaporation. [illegible]
[illegible] of the defrauded today 2nd [illegible]
[illegible] 2nd of the Pentstreet [illegible]
& Pennsbrecum, with the precipitation
[illegible] by dimensions
upon [illegible] medium. [illegible]
[illegible] the mentstreum is [illegible]
Direction in chemistry [illegible]
[illegible] steady, [illegible]
by which the [illegible]
[illegible] Tester. The remarks
[illegible] [illegible]
[illegible] [illegible]
[illegible]

The action of one body on another is effec-
[illegible] 30 [illegible]
ted by Solution, Evaporation [illegible]

The apparatus of [illegible]
[illegible] al heat [illegible] when [illegible]
below. Heat [illegible] always [illegible] thermometer [illegible]
[illegible] transition
[illegible] 36 [illegible]
[illegible] 4 [illegible] produces [illegible]
[illegible] is used when a [illegible]
[illegible] is become a [illegible]
[illegible], is [illegible] extraction [illegible] virtue of
[illegible] it may be [illegible]
[illegible] Fewel [illegible]
[illegible] capable of affording [illegible]
[illegible]

[illegible] inflammables are the [illegible]
[illegible] heat [illegible] flame
[illegible] Peat. Turf [illegible]
[illegible] the heat [illegible]
[illegible] Charcoal [illegible] Wood is more [illegible]
[illegible]
[illegible] coal [illegible]
[illegible] remarks [illegible] contains
not so much [illegible] as Charcoal. [illegible] ~~[illegible]~~ is
very bulky, requiring much air, leaves much [illegible]
[illegible] a moderate, equable [illegible]
The forms of [illegible] are different [illegible]
to the nature of the [illegible] performed [illegible].

Black Lead vessels bear the most intense [illegible].

[illegible]

Electric Attraction

[illegible]

[illegible] Electric Attraction and Repulsion are the 2 great principles of Electricity in the Universe.

The means of applying Heat are 1.st Wood, 2.nd Peat & Turf, 3.rd Fossil coal, 4.th Fire Fossil coal, 5.th Calm [illegible] carried by burning. Wood & Charcoal give [illegible] Heat. [illegible] Transparent, Opaque [illegible] Crystals [illegible] breathing [illegible] 5. [illegible] be [illegible] [illegible] natural [illegible] great [illegible]

The Head of Ferme Dieu 1 160 [illegible]

[illegible]

Lect. III. Idiosyncrasies are inc[illegible]
[illegible] constitutions, habits and
[illegible] 2nd from the vascularity, [illegible]
[illegible] 3rd from their action upon [illegible]
[illegible] the parts of the body.
[illegible]
[illegible] Conversely, the
[illegible] are separated, [illegible]
[illegible] rectified. [illegible] Conversely
[illegible] are partly the same medicines [illegible]
[illegible] deprivation of [illegible]
[illegible] permanent [illegible]
[illegible] seems [illegible]
[illegible] medicines [illegible]

1 [illegible] [illegible] Earthen vessels which [illegible] in
[illegible] [illegible] without melting [illegible] [illegible] [illegible]
[illegible] [illegible] of the [illegible] [illegible] [illegible] [illegible]
[illegible] Some are made of clay & [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible] [illegible] clay
[illegible] [illegible] [illegible] the [illegible] earth [illegible]
[illegible] vessels [illegible] [illegible] [illegible]
[illegible] are Crucibles & Cupels. [illegible]
are [illegible] a conical form broader above than
below, [illegible] [illegible] [illegible] [illegible] [illegible]
[illegible] [illegible] generally Triangular. [illegible]
are made of [illegible] [illegible] the Hessian; [illegible]
Black lead [illegible] [illegible] [illegible] [illegible] [illegible]
[illegible]. Cupels are made of dry porous
earths as white [illegible], & wood ash calcined &
[illegible]. [illegible] [illegible] [illegible] vessels like
[illegible] [illegible] [illegible] are the same.
The vessels used in the process of Evaporation
or desiccating the volatile parts & retaining the
fixed, are open vessels [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible] are [illegible] [illegible]
vessels of [illegible] [illegible] [illegible] [illegible]
[illegible], [illegible] of glass. [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible] [illegible]
[illegible] The vessels used in the
[illegible] [illegible] [illegible] [illegible] matter, different
[illegible] as the matter is fluid or solid; when fluid
[illegible] called Distillation. Distillation per ascensum,
[illegible] [illegible] [illegible] [illegible] [illegible], the [illegible]
[illegible] [illegible] into a [illegible] [illegible] & concentrated.

distillation per descensum, the heat [illegible]
the above, the vapour [illegible]
in a condensing vessel, [illegible]
[illegible] are [illegible] in this mode, [illegible]
distilled per latus, the water [illegible]
[illegible] the vessel placed
[illegible] the matter [illegible] in.
In this [illegible] the Alembic or still; which
consists of 1. The cucurbit or body, [illegible]
the matter for distillation, or water in which it is
immersed. 2. A vessel of the same name, [illegible]
[illegible] the matter of distillation [illegible]
[illegible] Bath. These vessels are [illegible]
[illegible] of every [illegible] kind. The first part of the
apparatus is the second part, or the Capital
[illegible] part of this is fixed in [illegible]
[illegible] neck. The side of the capital [illegible]
communicating with the Refrigeratory, called the Worm, by
[illegible] the Refrigeratory which surrounds the [illegible]
[illegible] in the side near the bottom is placed the
Cock. The vessel contains cold water to [illegible]
[illegible] the vapour [illegible] in the capital the water
[illegible] warm is drawn off by the cock [illegible]
[illegible] time [illegible] commodious [illegible]
[illegible] of which is connected to the [illegible]
Capital, [illegible] the [illegible] the [illegible]
[illegible] Receiver [illegible] the lower
[illegible] of which [illegible] the Receiver [illegible]
[illegible] the receiver [illegible].

[illegible] are [illegible]
[illegible] bulk of their bulk [illegible]
[illegible] capable of [illegible]
[illegible] therefore [illegible]
[illegible] the [illegible]
[illegible] only [illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible] Water, [illegible]

Salts are generally heterogeneous, possible of
being resolved into their constituent parts.
Earth is composed of Water, Salt & Air. Water
Earth & Air composed in Earth & water. Salt
are white, transparent, fusible bodies, great
solubility, attention & affinity towards water
Nitre. Salt is distinguished in the solution of
Salt by water. The solution of Salt in water
generates either heat or cold; the [illegible] cold
of the deliquescent Salt. Heat of Salt.
Nitre is added to a saturated solution of Sal.
Common. The more it is capable of dissolving by
a determination of water in the crystals of the
Salt Nitre. They differ in degree of fusibility
& solubility. Cold water dissolves an
equal quantity of common Salt. The hotter
the water, the more it dissolves of Salt. But
common Salt. Air is required to dissolve Salt.
The solubility differs in the following orders;

Agitation assists the solution of salts. The first portion of salt will be added [illegible] dissolved in less time than those afterwards [illegible]

Sal Glauber contains 1/3 water, hence [illegible] fusion, [illegible] calcined [illegible] respected. [illegible] is said to be [illegible] the formation of a certain quantity [illegible] will keep in [illegible] [illegible] [illegible] by evaporation [illegible] [illegible] [illegible] again [illegible] evaporation until a pellicle appears upon the surface, when it is set in a cool place to crystallize. The pellicle is presumed by the [illegible] of the salt causing some of the [illegible] [illegible] dissipated, that the remainder is not sufficient to keep the whole in solution [illegible] the efflorescence or vegetation of salts [illegible] as soon as the crystals begin to form, they advance [illegible] the side of the vessel & protrude over [illegible] a hollow cylinder at the top & [illegible] side, this forms a syphon, by which the solution is drawn out of the vessel. [illegible] [illegible] [illegible] exposed to the air, immediately [illegible] the entire [illegible] [illegible] again [illegible] [illegible] a hard [illegible] [illegible] which concrete [illegible] [illegible] the vessel with oil [illegible] [illegible] [illegible] Crystallization [illegible]

Exp. Weigh Alkali moist then Regen. Tart. &c.
Glaub. Sal. Rejec. Common Salt &c. in mor
Amon. Common Nitre, Calc. Sulph.
Vol. Tart. The water in which Salts are
dissolved occupies more, however less space
than it takes up for greater or lesser capa-
cities. Ice crystals are also in December lit-
tle regular forms for Glauber Salts &c.
Neither Alkali separately precipitates
Neutral Salts. Nitr. acid attracts water very
powerfully since Mr. Priestley exhausted abso-
-ut tract on. expels water from the air. Chrys-
-tallization goes forward best with slow motion
Sometimes a pellicle is formed on the top of the
solution. The fewer drops of liquid on a glass
-ss or marble slab, the more Salts result.
in the crystallized. Cold applied sudden to
a warm solution, extremely cooled, crystal-
-ization goes forward. They should be covered
to keep water off. Water to parts of Nitre when
hot takes more than when cold; the Salts in fact have
more when hot. Chrystals contain most
of manufacture. Every kind of Salt has
their figure of chrystals and cannot be cotton
per some peculiarity in the chrystals
[illegible] Salts —

Salts effervesce when heated, particularly that
is called spontaneous calcination; decrepita-
tion is the crackling that Salts make, when
thrown into fire. Salts are divided into
Simple & Compound. The simple into
Acids & Alkalies. The acids into ~~Vegetable~~
Vegetable, Mineral & Animal. The Mineral are
Vitriolic, Nitrous, & Marine; the Vegetable
acid is acided by Beraman; also the Animal
Salt not properly. The properties of the Mineral
Acids are as follows. viz. 1st. Attracting
for water. 2. Cold is generated on their dissolving
Ice. 3rd Heat on their mixture with water.
4. Red colour is struck on their mixture
with Lyr. Vol. or any Vegetable Blue. 5.
They effervesce with Alkalies; that is consumed
by the escape of fixed air; at perfectly exact a
neutral mixt effervesce. 6. Very corrosive.
7th. They impart a sour taste to the tongue
& corrosive &c. The chief
of the Nitrous acid is combined with Iron,
is colourless & transparent, nothing inflammable,
improperly called oil, but the rectification of oil
is occasioned by its dissolving the unctuous
substance & the oils of the ferment, which
is fire in great abundance. Nitre & Saltpetre
has great Heat; it boils with several 100. times its

[illegible] drawing of [illegible] with the [illegible]
[illegible] nearly double according to the
[illegible] matter.

[illegible] and in Dying, Bleaching, & the
[illegible] of the Cloth.

[illegible] are [illegible] the elementary bodies [illegible]
[illegible] the [illegible] constituents [illegible]
[illegible] not [illegible]
[illegible]

[illegible] the [illegible] direction of the
[illegible] becomes black directly [illegible]
[illegible] Precipitation they contain.

Aqua fortis (which is nitric acid) is the most powerful of all the metallic calcareous earth, of gum, selenite, with Crystallized, Alum, Sal Prunella, Fluor, Spar, by pure Fixed Alkali, Sal Prunella, Sal Fixed, Sal Ammoniac, which convert it into Black Lead, made Fantastic Figures, Sparkling, Sparkling, Crystallization form, Regular, which is an emblem of the most, ing, Strong, Change & modification in all its mixture. Mixed with Oil of Vitriol it takes it black like Tar; with Turpentine, red & purple, white. It dissolves all the metals, Gold, Mercurius being mixed with water to dissolve Iron & Zinc, being highly concentrated to dissolve copper, it must boil to dissolve the rest. The Strongest here always has an acid in it. There's water always in the Sun, even in the hottest & driest terrest. Nitric mixed with water corrosive calcareous earth, causes a high effervescence which is selenite. The acid combines with the generated gold, it is called solution, with water lead & it is called [illegible] Mercurius

In distillation particles, [illegible]
[illegible] Regulus, [illegible] chemical bodies
[illegible] well formed into a beak, & so bent in
[illegible] make the body an angle of 60. Adjoining
into Bottles. Principally which bodies are
[illegible] other [illegible] [illegible]
[illegible] for their perfection. Either [illegible]
[illegible] [illegible] [illegible] substances
[illegible] [illegible] [illegible] [illegible]
called [illegible] [illegible] distillation [illegible]
[illegible] [illegible] [illegible] Bottles of
[illegible] [illegible] [illegible] [illegible]
[illegible] Retorts are a kind of Glass [illegible]
[illegible] both ends, [illegible] [illegible]
[illegible] so that the whole form [illegible]
[illegible] Recollected by Distillation [illegible]
[illegible] [illegible] [illegible] [illegible]
[illegible] Sublimation is a process by which [illegible]
[illegible] substances are obtained. When [illegible]
[illegible] powder, they are called Flowers, [illegible]
[illegible] called [illegible] sublimates. [illegible]
[illegible] [illegible] distillation.

[illegible] [illegible] to contain substances [illegible]
[illegible] each other are either Crucibles or [illegible]
[illegible] [illegible] [illegible] it called Cementation.
[illegible] separate Silver from [illegible] [illegible] convert [illegible]
[illegible] Steel, & [illegible] into Brass. The [illegible]
[illegible] [illegible] are laid [illegible] [illegible]
[illegible] under [illegible] cement [illegible] between [illegible]
[illegible] [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible]

Lectr: 10th [illegible]

[illegible] occasioned by the [illegible] acid [illegible] are owing to the [illegible] acid. [illegible] form [illegible] with [illegible] the [illegible] with an acid [illegible] escapes from [illegible] the [illegible] principle of inflammable [illegible] Nature, or compound [illegible] in the air. It is [illegible] combined with 1st [illegible] Sulphur. 2nd Fossile Alkali [illegible] Salt. Veget. Alkali; [illegible]

3. Calcareous Earth, Selenites. clay, [illegible]
4. Metals. principally Iron, Copper, Zinc.
5. Mineral waters. [illegible]

Sulphur is almost every where in the Earth [illegible], being decomposed ~~produced~~ by [illegible] some such Natural Process produces [illegible] acid which is combined with [illegible] originally pure & combined [illegible] &c. by [illegible] Process.

Chapter 5th Section 2nd

Relevant analytical chemistry usually involves the detection of metals from specimens of ores, or treated stocks, in order to determine the presence or absence in a specimen of a particular element or compound. Some methods of this kind are very sensitive, and are very distinctive.

Heat is generally produced by means of a furnace, which is a chemical instrument of fire containing combustible matter in burning of which, the heat required is produced, also for concentrating heat themselves to which the heat is applied. They consist of 1. An Inlet for communicating with the open air. 2. A place to contain the fuel, between which, & the ash, is the grate. 3. Hole or door for supplying fuel. 4. A Vent for the smoke. The various kinds of furnaces are these? Air furnace, Reverberatory furnace, muffle furnace, Crucible or melting furnace, Blast furnace or blast furnace, Cupelling or assay furnace, which is a covered of such materials as will not [illegible]

It is most easily obtained from the Sulphuric Acid by Steam for the Chlorine forms part of Sulphuric acid given off with Steam. Chlorine is not well marked in the Laboratory demonstration [illegible]

[illegible]

[illegible]

[illegible]

[illegible] Chlorine Bleaches the Coloured Leaves, as the Acids reduced Cotton, because the Chlorine liberates oxygen of which it contains a great quantity, thus [illegible] Sulphur combines with the Hydrogen, forming the Combination of Sulphuretted Hydrogen. The quantity of Chlorine contained in the Atmosphere. Hydrochloric acid volatile: only combines with Water or Cold. Nitric acid reddened by exposure to the air. Aqua regia a mixture of the Nitric & Muriatic acids. Manufactured with all Precautions, having Heat of Effervescence. Nitrous compounds with Fixed Alkali forms Nitre [illegible] Vegetable [illegible]

[illegible]

The red flaming colour of the Nitrous acid is
the quantity of Phlogiston it contains; it un-
ites to the air, it becomes pale by the escape
of Phlogiston. The colour is again renewed by
adding more Phlogiston in Sph. Nitrous Ether.
This is procured by decomposition; by adding the
acid, mainly by elective attraction formed and
fixing the vegt. alkali in the Nitre. The other
acid is not added because the Nitrous acid
Vegt. alkali have a greater attraction to each
other and it is more volatile. Bacon says it a
lemon, it boils, when at, a with water
it [illegible] but greater rate with [illegible]
Fire. —

as the Vol. Alkali, Nitrous Ammon[illegible] in[illegible]

[illegible] [illegible]ion easily as appears from mixing
[illegible] Turpentine with Earths [illegible]
[illegible] [illegible] stirring & [illegible] [illegible]
[illegible] [illegible] [illegible] subtile
[illegible] [illegible] [illegible] very subtile form
[illegible] [illegible] [illegible]
[illegible] [illegible] [illegible]
[illegible] [illegible] [illegible]
[illegible] substances like the [illegible]

[illegible]

[illegible] acid is sparingly [illegible] by [illegible]
[illegible] by adding either Nitrous or [illegible]
[illegible] of their greater attraction [illegible]
[illegible] Alkali; but the Vitriolic acid [illegible]
[illegible] Alkali. —— Nitrous acid [illegible]
[illegible] water is at 10 to 12, i.e. [illegible]

12 10.

[illegible] mineral [illegible]

[illegible] in composition [illegible] with water. [illegible] mortification [illegible]

[illegible] calcareous or ~~[illegible]~~ clayey earth. [illegible] from [illegible] mineral acid. It dissolves the [illegible] combines imperfectly with water. [illegible] flame, [illegible] the [illegible] mixed with [illegible] is procured [illegible]. It is obtained by distillation from the [illegible] with which it is mixed. [illegible] possesses most of the distinguishing properties of mineral acids, but not so powerful. Lemon acid is obtained by expression, & contains a quantity of gum mucilage [illegible] on the application [illegible] gradual [illegible] taste [illegible] fermentation [illegible] that it is procured from [illegible] with all the [illegible] substance. [illegible]

Sal ammoniac (Muriate d'Ammoniaque) totalement inconnu aux

[illegible] Tin, Copper & Lead, [illegible]
water. Mr Keith in great & learned [illegible]
the French, particularly before they are [illegible]
after this, for possible accurate [illegible]
it's Concentrated in the Lead & Tin.
Mr Cavell at the end of his Inquiry
[illegible] from 1820 [illegible]
[illegible] Lead & Tin [illegible]
[illegible] Lead & Tin [illegible]
[illegible] Lead & Tin are [illegible]
never is always [illegible] with [illegible]
[illegible] of water. It concentrate by [illegible]
had most perfectly by exposing [illegible]
[illegible] 32° of F. Thermometer; in that the water is
broken & the remainder is the pure acid of [illegible]
[illegible] & corroding as the Mineral acids [illegible]
[illegible] readily with all the alkalies, [illegible]
[illegible] it makes Earth. Regenerated. [illegible]
[illegible] the Volatilizing [illegible]
[illegible] Fixation & Vitrification, it depends the
[illegible] Concrete Earth. Neutralized & [illegible] the
[illegible] of [illegible] with [illegible] Infusions, [illegible]
[illegible] an [illegible] quantity [illegible]
[illegible] & may be separated from
[illegible] by [illegible] & [illegible]
[illegible] Metals by [illegible] & [illegible]
[illegible] Metallic calx from [illegible] Palladium &
[illegible] Metallic substances, [illegible]
[illegible] Metal [illegible]

[illegible] which [illegible]
[illegible] produced by
fermentation from two or more substances
[illegible]
[illegible]
[illegible] Hydrochlorate of Soda
[illegible] Fixed Alkali, if formed [illegible]
the Vegetable Carb. Solub. Percolates with
[illegible] Earths rendering them soluble
in water. Animal substances
[illegible] also Water since [illegible]
[illegible] weighed to determine [illegible]
[illegible] increased by [illegible]
[illegible] Q. R. & O. [illegible]
[illegible] Sun, & deposited [illegible]
[illegible] Clorich, which [illegible]
[illegible] Hoch. The [illegible] in colour
[illegible] the remarkable [illegible] oil [illegible] tains.
[illegible] whether [illegible], the former [illegible]
[illegible] afford [illegible] them
[illegible] as Clorich, Curgumic [illegible]
[illegible] more [illegible] carbonaceous [illegible]
[illegible] the Carb. in second [illegible] the [illegible]

[illegible]

Fermentation [illegible]

[illegible]

[illegible] Distillation.

[illegible] have power [illegible]

[illegible] formally [illegible]

[illegible] by distillation, [illegible]

[illegible] by expression & ferment [illegible]

[illegible] obtained from Amber, Tar, [illegible]

[illegible] fermentation by distilling it. The virtues

[illegible] of Tar water depending [illegible]

[illegible] Acids are the Acid Salts of Tartar,

[illegible] of the Acid of Vitriol or [illegible] of

[illegible] Acids in general [illegible]

[illegible] of Nature. Acids of [illegible]

[illegible] by Heat, but cannot [illegible]

[illegible] Acids [illegible] Table, con-

[illegible]

[illegible]

[illegible] Mineral Alkali, [illegible] Common Salt & Sal. Vegetable unite with Earths & strongly attract the air with which latter it makes Deliquescent. Vegetable Alkali [illegible] Disposition to the air. The Light & Flakey Crystals are owing to the Sulphur [illegible] Copperas. Vegetable Fixe, Cobalt & Iron, [illegible] in water. Some of the [illegible] with Vegetable Salts are found in great abundance in animals & to feed on Vegetables. The [illegible] from the [illegible] Brain [illegible] of the accident a reason

[illegible] of the [illegible], but one operation Putre[illegible]
is putrescent state of [illegible]. The Vegt. Alkal.
[illegible] Alkal. [illegible] spontaneously in all bodies [illegible] of
fermentation, as it is not a necessary product of
Animals; but it is [illegible] by an acid existing many
mal matter in the [illegible] taken in by the food, [illegible]
by [illegible] forms [illegible], [illegible] then [illegible] the
body [illegible] by [illegible] salts, particularly by their
the [illegible] [illegible] a [illegible] by [illegible]
[illegible] saturate [illegible] the alkali
[illegible] By a [illegible] of salts
[illegible] perspiration being obstructed, — ~~but~~ the Alk.
Alk. is accumulated & causes [illegible]. There is a [illegible]
[illegible] of the Marine Salt [illegible] Vol. Alkali.
The [illegible] acid & Vol. Alkali form Sal Ammonia[illegible]
[illegible] Salt, is obtained in [illegible] with [illegible]
[illegible] quantity of water. The taste is [illegible]
the water is raised from the Salt by heat [illegible]
not the part of the Salt, not because it is volatile, [illegible]
on account of the water it is mixed with. [illegible]
water is extracted, it concentrates into a solid [illegible]
[illegible] Fossil Alkali, it forms Borax [illegible]
[illegible] all alkalis, which [illegible]
[illegible] all the acids from their Bases, but the
Vitriolic, Marine [illegible] & [illegible]
[illegible] Earths; it acts [illegible] inflammable [illegible]
[illegible] ~~[illegible]~~ slowly on water. It is obtained
from Borax by decomposition, by distilling it with
one of the Mineral acids.

[illegible] acid & Vol. Alkali form [illegible]

[illegible]

[illegible] Coagulum [illegible]

[illegible] effervesce with alkalies, [illegible]

[illegible] Sea, Water, [illegible]

[illegible] we their differences in their [illegible]

[illegible] in their quantities & differences.

[illegible] are of three kinds viz. Bituminous,

Vitreous & Sulphureous. [illegible]

[illegible] by the consistence & [illegible]

[illegible] or variously combine. [illegible]

[illegible] from the Nitrous acid & [illegible]

[illegible] together, which proves [illegible]

[illegible] the Vitriolic acid, & the Marine [illegible]

[illegible] the different Acids are [illegible] combination

[illegible] Mineral [illegible] [illegible]

[illegible] [illegible] [illegible] [illegible]

[illegible] strength [illegible]

[illegible] Rennet by coagulating the Cream [illegible]

[illegible] evidently erroneous, as [illegible] circulates in the minute branches of the Pulmonary & Cardiac Vessels [illegible] cause instant death, moreover, [illegible] the [illegible] the sensible [illegible] of these [illegible]

[illegible] are [illegible] Their action is confined to the stomach alone, & is greatly [illegible], from which by consent of the nerves, their effects are communicated over the system [illegible] are called coolers, but they produce this effect by diminishing the action of the [illegible] & allaying the motions of the [illegible]. This is proved by [illegible] a gill of Vinegar, lowering the pulse from [illegible] to 60 in a very little time [illegible]

[illegible] on the cold fit of an intermittent [illegible] on the blood [illegible] the stomach [illegible] [illegible] [illegible]

[illegible]

[illegible]

[illegible] Muriatic acid irritate & therefore corroding. The vegetable acid are most commonly used. The best of them are [illegible] in Crapes [illegible] they are received more [illegible] & coagulant by the quantity [illegible] needed in the Porter. Time in consequence [illegible] volumes by years [illegible] [illegible] which received its beneficial effects [illegible]

[illegible] purgent [illegible]
[illegible] bitter. [illegible]
[illegible]
Inflammation [illegible]
[illegible]
[illegible]
[illegible]
[illegible] of the depend [illegible]
[illegible] purgent [illegible] for the [illegible]
[illegible] are good [illegible].

[illegible] purgent [illegible] the
[illegible] Febrile, it of great service in reduc-
[illegible] Debilites, as a corroborant [illegible]
[illegible] inflammatory [illegible].
[illegible] are distinguished by the following
[illegible] urinary [illegible] Strong purgent [illegible]
[illegible] a green colour with [illegible] [illegible]
[illegible] It is also [illegible] the most con-
[illegible]
[illegible]
[illegible]

[illegible] acid, or the salt of [illegible]
[illegible] [illegible] acid. 7) [illegible]
[illegible], whose vapours are [illegible] with
the [illegible] [illegible] sulphur, which combines
with the [illegible] alkali forms [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible] coasts [illegible] [illegible]
[illegible] on the Mediterranean. [illegible]
[illegible], [illegible] [illegible] [illegible] [illegible]
thinks it's a distinct species from the
real [illegible] kali grows on Cape [illegible].
It's dried, burnt & lixiviated to procure the
Alkali. Its use greatly in making [illegible]
Vegl. Alkali differs from it in being more
pungent, which is increased by burning;
it is made caustic by the escape of the fixed
air, some air always remains. [illegible] heat [illegible]
be applied great enough, [illegible] [illegible] [illegible] [illegible]
[illegible] [illegible] of [illegible] [illegible] [illegible] [illegible]
[illegible] air could be separated —

Vegl. Alkali is made caustic by burning
it & depriving it of its fixed air, which is
always left in a certain ratio to [illegible]
[illegible] [illegible] from Vegetables by incinerating
them, lixiviating their ashes, filtrating &
[illegible] the solution. —

[illegible] effervescence [illegible] [illegible] [illegible] Acids [illegible]
in the ~~[illegible]~~ [illegible] of the fixed air in the
Alkali; they are caustic alkalies [illegible]
[illegible] in the [illegible]. [illegible] [illegible] [illegible]
takes place in the mixture of [illegible] [illegible].
[illegible] air, the acid [illegible] in the alkali
[illegible] [illegible] [illegible] [illegible] [illegible]
concentrated [illegible]. [illegible] [illegible] can
[illegible] of fixed air. Unites with the
Earths, rendering them more [illegible].
more caustic by mixing a [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible], [illegible]
lime absorbs the fixed air in the [illegible]
[illegible] [illegible] in its caustic state. [illegible]
unites with Sulphur, making [illegible]
[illegible] & other inflammables; with [illegible]
Soap; the Veg. & Min. Alkali may more [illegible]
mately & make better Soap, if the alkali
is caustic, the deficience by adding quick
lime to the ley. It is used to [illegible] made
of [illegible], which it does [illegible]
[illegible] for which it has a great attraction, so
[illegible] [illegible] [illegible] [illegible]
[illegible] dissolves in an equal quantity of water.
[illegible] [illegible] [illegible] [illegible] but [illegible]
[illegible] this [illegible].

[illegible] promote putrefaction, & [illegible] almost
[illegible] in this state, since Sulphur
notwithstanding its hot combustible, [illegible] with
which it forms an agent so destructive of all Vegetable
[illegible] [illegible], & corrodes & destroys Vegeta-
ble & animal substances. & removes Films
from the yet leaves a much greater affinity
for inorganic than organic bodies; dissolves
Metals hence used in Gonorrhœa in Spirit
of Sal. dissolves Heterogeneous Particles, hence used
in Tanning, as the colour of animal substances
owing to the Foreign Heterogeneous particles
separating it. Gold & Silver separating from
the [illegible] with which they are interwoven, by
throwing them into a solution of caustic Alkali
which dissolves the Silk being an animal
substance, & suffers the Gold & Silver to fall
in powder. Alkali obtained by deflagration with
the Charcoal, by calcining Tartar, & from
the ashes of Vegetables. [illegible]
[illegible] the food or nutriment [illegible]
[illegible] in contact with a [illegible] of Alkali, is also
necessary for its digestion [illegible]
[illegible] the presence of
[illegible] the [illegible] of

[illegible]

[illegible] Sal. Ammon. [illegible]
[illegible] Earth, & Metals decompos'd.
[illegible] Sal. Ammon. [illegible]
[illegible] into a Retort with a [illegible]
[illegible] Water & suffered to devill [illegible]
[illegible] Tuali, will so greatly [illegible]
[illegible] Shall wear perpetuall [illegible]
[illegible] of Spirits [illegible]

[illegible]

[illegible] Cause [illegible] a powerful remedy in

Calculous complaints, [illegible]

for they neither increase nor wear out the stone

in Calculi. Dr John Pringle [illegible]

at his lectures

on drawing inferences from experiments [illegible]

of the bodies & Hepatic [illegible]

induce a hysteresis of the [illegible]

immediately upon it, for these reasons

[illegible] an acid always in the stomach, or

[illegible] neutralize [illegible]

[illegible] be [illegible], therefore [illegible]

[illegible] accounts [illegible]

[illegible] [illegible] [illegible]

[illegible] [illegible] [illegible]

[illegible] moved [illegible] in [illegible] [illegible] to the Elasticity of [illegible] in the [illegible] may be [illegible] with the generation [illegible]; 2nd they change the state of the [illegible] [illegible] the [illegible], 3rd they destroy [illegible] the sensibility [illegible] [illegible] that Salts are composed of [illegible] as acid & Alkali forming a [illegible] acid, not [illegible] of the [illegible] in a certain [illegible] to the height of Saturation. the ceasing of effervescence is no [illegible] of [illegible]; it depends on the [illegible] of the Alkali; 2. figure of the [illegible]; 3rd [illegible] & distance of the particles from each other. The best way is [illegible] in [illegible] paper in [illegible] [illegible] the [illegible]; or [illegible] made [illegible] Alkali [illegible] be excluded from the air, because the [illegible]

[illegible] The Natural [illegible] Salts [illegible]

[illegible]

[illegible] distinguished [illegible] and
outlasting their properties. Electric
Attraction [illegible] state. —
Then can be distinguished [illegible]
[illegible] simple and [illegible] decomposition
another by electric attraction.

Salt of Glauber's Salt is composed
of Sulphuric acid & fossil Alkali. It [illegible]
[illegible] neutral with two acids [illegible]
[illegible]. Its spontaneous calcination
[illegible] the air is a mark [illegible]
contains a great deal of water [illegible]
[illegible] fusion by Heat. It's [illegible]
[illegible] & Alkalis, & has no [illegible]
[illegible] affinities. It's decomposition by [illegible]
[illegible] of Magnesia formerly [illegible]
[illegible] neutralizes with the [illegible]
[illegible]
[illegible] Alkali
[illegible]

[illegible] are [illegible]
[illegible] remarkable regular.

[illegible] the acid are
[illegible] Alkali. hydrosulphuric electric
[illegible]

[illegible]

[illegible] Charcoal. [illegible]
[illegible] Primal bodies. Sixteen [illegible]
[illegible] of Tart. Vit. [illegible]
[illegible] artificial. [illegible]
[illegible] the acid & Alkali separate [illegible]
[illegible] & Alkali compound [illegible]
[illegible] the alkali simple, [illegible]

[illegible]

[illegible]

[illegible]

[illegible] Nitrous acid & Veg.[illegible] Alkali [illegible]

[illegible]

[illegible]

[illegible]

Nitre of Saltpetre ~~explained~~ melted separately
from the other salts only the Nitrous
acid is dephlegmated, the remainder is a
compound of Nitre & fixed Alkali.
Nitre as the Acid Saltpetre forms all the
Ac. Nitrous acid in it. Saltpetre
became made red hot. There is a Nitre
exists ready formed, & element, & red hot
serves for the regeneration of
Oxygen; in short there is no such thing as
Dephlogisticated Nitre. Nitre is the Basis of all
Medicine common, & well; & Nitre, is
principal in Powder. Gun-Powder is a com-
pound of Saltpeter, & Charcoal, & Nitre, in
proportions are viz. 75 Parts of Nitre, 15 Pa
rts of Charcoal, & 10 Parts of Sulphur.
The Nitre should be as pure as possible, for
the goodness of the Powder depends on it.
The Charcoal should be from the lighter
wood of the different parts should be at-
[illegible] Glazed powder is [illegible]
[illegible]

the remaining parts remaining upon the explosion of good powder should be very
[illegible] long. The explosion of Gunpowder proceeds
from the escape of the fixed air from the mineral.
The smell perceived upon the explosion of Gun-
powder is that of Sulphur. Sulphur which remains
behind; the more there is, the worse
the Gunpowder is, because it shows the con-
stituent parts not to be well incorporated.
Silver not so inactive in explosions as Gold is
more rapid & sudden. Nitre & any burning
or Nitrous, is composed of 3 parts of Salt
Petre, & 1 of Sal. Tart. Its explosion
is owing to the escape of the fixed air in
the Sal. Tart. Nitre is dissolved in seven
times its weight of water. Vitriolic
acid, Volatile & fixed alkali. Animals, et
cetera from a red colour & preserve them from
putrefaction. Spirit of Wine or
[illegible]. Salpetre seldom crystallizes
[illegible] Hot stones lose
[illegible] by exposition. [illegible] prove it
[illegible]. [illegible] upon the

A Fire never in India burns the pure
fixing Salts of the Earth. It is a natural
Stone and nature adhering to Rocks, exceeds
Stone. It made in Crucibles & furnaces
heating Iron & Brass under the perfect,
which purifying all the Fire. It made the
from the rubbage of Tiles. Horses, Rabbits,
the arm for man Celestial Glass which every
kind of Glass wall, by accumulating it for
a heap covering it & suffering it to fuse
the Metre produced in this manner is very
pure & adulterated with Common Salt, which
be dissolved in boiling water, filtrated & evapo-
rated, the Common Salt will chrystalize
with a boiling heat, which must be carefully
taken out as fast as chrystallized; the Metre
crystallizes only by cold & Rest: this must
be repeated three times to get the purest Metre.
Iron fixed by itself on clayey ground will
run off forever, but mixed with Lime iron
becomes, expedes this fixation, increases
its expanding power, by weakening the Fire
from them. — It melts in Iron red hot
[illegible] Metre [illegible]
weight [illegible] Vitrail &c.
It will not dissolve iron red hot.

N.B. [illegible] is [illegible] of [illegible] [illegible].

Antimon. [illegible] and [illegible] [illegible] with a fixed alkali or quick [illegible] [illegible] in the acid of [illegible] [illegible] [illegible].

N.B. [illegible] is [illegible] in the [illegible] some [illegible] by art [illegible] [illegible] [illegible] is [illegible].

[illegible]. Common fuses with no less ÿn red heat.

Lect. 15th

[illegible] Special [illegible]
[illegible] [illegible] [illegible]
Da Placenta [illegible] formed. In [illegible]
[illegible] they are [illegible] [illegible]
[illegible] [illegible] particularly [illegible]
[illegible] [illegible] [illegible]
[illegible] water should be taken away!
[illegible] [illegible] in the [illegible]
[illegible] [illegible] [illegible]
[illegible] [illegible] the consequence [illegible]
[illegible] the cause, both which might be [illegible]
[illegible] receive infection. [illegible]
[illegible] [illegible] on the Nervous System. [illegible]
[illegible] [illegible] of any disease [illegible]
[illegible] [illegible] effects of contagion & prevent it
[illegible] that Gouty people [illegible] [illegible]
[illegible] [illegible] the Surface of the Body [illegible]
[illegible] [illegible] should be covered with [illegible] [illegible]
[illegible] complete the Influenza, [illegible] [illegible]
[illegible] [illegible] [illegible]; [illegible] [illegible] [illegible]
[illegible] [illegible] &c. Infection & contagion.
[illegible] [illegible] [illegible] [illegible] by
[illegible] [illegible] the [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible] [illegible] [illegible].

on Purpose to expose this well
distilled by Sir Will. Petty the Sum
mere. Hogs bidy in the Smoke often
stops without issue by water if he put
on some Cinn. the Sweet. Almond & mouse
on the Scans Imit it the best Discussion
of the Jaundice & Stone. Sal. Comm. is
distilled by methods viz. 1. Coagulation if
which the Crucibles partake proper. & the Lime
remain a Fixt Salt. 2. Evaporation the water
is the least of the Lem. 3. By the Acid of
these are Acrime in Lectures, & Spirituous it throw
in to carriges it, which it does by coagulation
in the Fixed, entangling the impure Earth
rising to the surface from whence it is scum
ed it called Boiled Salt. Sal. Gem. with
Rock Salt. The Spirit may be obtained by
the absorption of the aqueous parts of sea water
swimming the Body into Glacies. in the
is the only substance known to precipitate
Sal. Comm. which it does considerably. 4. By
evaporating the water by the effocacy of
parts very much divided to a stream of air.
Winds & Tempests & by agitations the sea
covering a larger surface. & the action of the

an increased effect, instead of that expected
to have been produced. And the difficulty
of effecting it, is in the primary difficul-
ties; indeed always more readily overcome than
in cold water, for in hot water it contains
but half a measure as will come.

Lect. 16th. Sal. Ammon. is a compound
of muriatic acid & Vol. Alkali. It comes
over in concavo-convex cakes, the convex surface
is of a brown dirty colour; [illegible] the concave
surface is much whiter & smooth. It sublimates
in a degree of heat somewhat less than that of its fusion.
It is decomposed by lime, & also by the Vitr.
or Nitr. acid, & by the fixed alkalis as in making
Vol. Alkali. If Lime be used more Vol.
Alkali is procured than if Quick-lime
is added by reason of the former containing
much fixed air, which the latter is devoid of.
When Nitr. acid is added, care should be taken
to confine the steams of both, as these would
prove pernicious to the operator. The Vitr. acid
is commonly [illegible] the end of the [illegible] for-
[illegible] of the neutral salt of Glauber. Sal.
[illegible] [illegible] [illegible] decompose Sal.
Ammon. What is the attraction for [illegible]
[illegible] [illegible] 32 parts of [illegible] [illegible]
to be one of Sal. Ammon. The Muriatic
Acid, is contained in [illegible] Silver, Copper
Iron, Zinc, Lead, & Mercury, & [illegible]
[illegible] [illegible] [illegible]. With the [illegible]
[illegible] [illegible] [illegible], Iron, [illegible]. [illegible]

These are prepared by solution without heat.
Salt, Sugar, melted with water, generally
33 of cold. Mixed in a receiver.

Derived its name from the Temple of Jupiter
Ammon, in whose neighbourhood it was
first made. It is not native as supposed by
the Ancients, but always artificial. It
like it sometimes occurs near Volcanoes.
It is obtained from Soda which contains that
Alkali; it from fuel in Egypt, which is the
dung of Animals. This is sublimed into
large glass globes, at the top of which the salt
concretes in Crystals. Sometimes the gross vitreous
matter breaks to it; the recevers are broken
to get at the salt. There are several holes in
the glass for the escape of the confined vapour.
There a Manufactory of it in Scotland near
Edinburgh. It is obtained in four ways, as
the other Neutrals, mutatis mutandis. Cath.
Cornut. is decomposed by Heat. Here three
mineral acids. Nitrous acid on Earth. It
obtained on Salt Petre in Water. Nitrous
Acid Totally on Metals; this always air giving
off. Tender is used to dissolving, quicks
lime, Spirits, Calcines. Much in the
two first cases by the gas emanating from

in the Stomach proving sedative.

[illegible]
[illegible]
[illegible]
[illegible]

Dr Bader recommends judiciously given the alkali & acid separately in order that the Effervescence may go on in the Stomach. The following method is the best. Take two grains of the vol. alkali with as much flour or powder of liquorice, & add the cortex Horat. or to a Bolus which give as soon as may be, & immediately throw down upon it a Gallon Tumbler of a mixture of lime or Lemon juice diluted with Spring water & sweetened with Sugar. The preparation of Mr Herdor or Dr Simmons pills is that. Gradual heat makes it thick like Gruel, which is cured with success for obstinate humors. It does not remain in caries or Metals; & is always artificial. Lib. Cell. or de Lugnette from its Author, name is decomposed by infusion. Lib. Cell. is incapable of fusion; & is decomposed by Vinegar & the three Mineral acids: Hence by being decomposed by the acid in the stomach frequently disappoints the physician, in not proving purgative. If boiled in water, it is artificial. It is clear, uncrystallizable, transparent, not salt. It will not convert into a gelly

Salt dissolved in water, it crystallizes;
the crystals have the same properties
exactly as before. It's decom=
posed by the Vitriolic, Muriatic &c.
acids. Acts on the tartrit of pot=
in precipitating them. Dissolves in
Min. by heat which afterwards turns yell
a fine green flame. Fused at a flu=
in soldering. Dissolves in 30 times its
weight of water. It's brought from the
East Indies, & is packed in Holland.
Artificial, & made from fat substances are placed on the clay, & suffered
to remain together for years 1 or 2. in which
time an acid is formed that corrodes the clay,
thus the vitriol is formed impure. Cautions with
regard are known not. ——— Large
crystals are formed from its solu=
tion in lime water, & small ones in
simple water.
[illegible]
[illegible]

Earths. Lectr. 17th

They are bodies which are not soluble in water, are [illegible] incombustible & infusible when pure, but [illegible] by a great heat. — They are [illegible] into [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible].

The [illegible] are [illegible] [illegible] [illegible] [illegible] [illegible] their properties [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] & the Metals [illegible] [illegible]

The Shells discovered [illegible] mountains, in the bowels of the Earth & every where, are a mark of the Earths having undergone a great revolution, by the Deluge. Before the Deluge: the [illegible] of the [illegible] coincided with that of the Earth but after & by the Deluge it declined in an angle of 23½°. Vegetables have a principle of life — Minerals have not & are entirely [illegible].

[illegible]

[illegible] Vegetable [illegible]
[illegible] essential [illegible]
[illegible] Primo. The substance [illegible]
[illegible] common sediment [illegible]
[illegible] calls [illegible]
[illegible] to delivery, if [illegible]
[illegible] time from [illegible] Second [illegible]
[illegible] other fluids. The reason [illegible]
[illegible] different from [illegible] nature of
[illegible] water [illegible]
[illegible] Lime water [illegible]
[illegible] phenomena of [illegible]
[illegible] odour. One ounce of water [illegible]
[illegible] green [illegible] lime. [illegible]
[illegible]
[illegible] Black [illegible] lime [illegible]
[illegible]

[illegible] in [illegible] refiner's shops
boiling with the scum of lime, Ox
charged by the blood of the white of
eggs. Put into flat vessels, close
[illegible] with water placed [illegible]
which remains on till the day, or
longer or two. The water dissolves [illegible]
the lime & the acid of sugar, carries it
off. The lime is added to neutralize the re-
dundance of acid that would prevent the lu-
cent crystallizing. Syrup be left in
a [illegible] completely. Loaf sugar is made
by boiling the syrup over again & clarifying
as before. The goodness of the loaf sugar
depends on the nature & quantity of the
[illegible] sugar. 2. The nature of the clay
3. The nature & use of the clarifiers. 4.
The number of times it is boiled. Double
refined loaf sugar is oftener boiled, care-
fully & cleaned than the other kinds. Cryst-
allization depends on the destruction of the
[illegible] powerful & [illegible]
[illegible] Lime. [illegible]
[illegible] excellent [illegible] Refection;
[illegible] reduction [illegible]
[illegible] [illegible]

[illegible] bed it also at. It attracts
moisture which does not in itself but
fertilizes the ground by causing an ex-
ertion of the menstruum from the vege-
tables it is mixed with. It were pernicious
if placed on clay ground or any other
cold vegetables to act on, as it effects clayey
the properties of the ground, but on
other vegetables it has not, but pro-
duces the generation of a volume or other
manure. Too much lime is injurious.
There should be neither more nor less lime
enough to act on the quant. of vegetables
it is mixed with. Forty Bushels is the
quantity for an acre of common use,
but for an acre of peat, it is more
the more weed Rotherwegs peat, the more
lime. Neither during Lebised Abstract
Earths are divided into Chalk, Lime,
Marle, Marbles, calcined bones, Fluors
Calcareus, Spars, Selenites, Gypsum
Zeolites, Zeolitic, Tophi, Sinter
Tufa, Alum — Lime is found on the
Earth of some kind on the surface, Chalk
is found in large quantities in Kent, on
it is the primary earth, from which flints
are made. The difference of the colours is

owing to the animal & vegetable substances with which it's mixed. Marble is composed of Lime, clay & sand. Alum is formed from the mixture with dephlegm'd acid. It's found in strata sometimes of very considerable extent, which depends on the time it contains. Marble lies in strata in the Earth; in Italy & the Island of Paros chiefly. It forms a selenite with the vitriolic acid which it acts only in Powder. Iron is proved to be in the Marble from its being an ink with a decoction of Galls. The good deal formed from shells, which clearly appear from rubbing it with it. It's black, Yellow, red, White & Blue, mixed & figured. The best is in Paros an isle in the Levant. Marble or calcareous earth, is found in a chalky, granular, clay, shalleized, or Rhomboid & cubic.

Selenite is in transparent chrystals, & found in the hollow of Mountains, caves & caverns resembling icicles; formed by water washing together calcareous particles mixed in the earth of Mountains.

Phosphates consisted of Vegetables &
stony matter. The Defecations of Vegetables.
Collitis consisted of Animal matters &
stony concretions. Bones of animals are
calcareous. The chief is Human calculus.
Tophus is found in the joints of Gouty
people; & is y consequence not y cause of
the Gout. Magnesia alba is of a cal-
careous Nature. It was formerly made
of the Mother of Nitre which is com-
posed of the Nitr. acid & calcareous earth; by
adding fixed alkali the Magnesia or calc.
earth fell to the bottom & a cubic Nitre
mon Nitre was formed acc. to y kind of
Alkali used. It made from Bittern
after the chrystallization of tab. com.
It is also made from the Epsom Waters
in England or from a solution of tab.
Epsom in water by adding an Alkali.

Lect. 19th. Magnesia differs from the rest
calcareous earths in being soluble in water, from
lime a better purgative & with the Vit.
the Vitriols are astringent & [illegible]
Magnesia like lime & Chalk becomes light
if be being calcined in the fire; but shrinks
not & it owing to the texture, the fixed air
in the situation [illegible] Dissipated with acids
also it unites equally with them.

Lect. 19. Mr Henry made that im-
provement in Magnesia & his it reckoned
the best. The calcined magnesia is better
than the uncalcined as it does not give the
the latter does wine, or acidly with
the air. Experiments prove that fixed
air is calcined earth, clay, & Magnesia.

Most used in medicine are Earth,
Carbonat, calcined Earth, & Lime water.
The two first are most proper for children,
as they are digested in large dosing. The
latter is only a gentle aperient, more
suitable for children & grown up persons.
The third is insoluble in water,
& is only deposited in the Dense part.
It is ill judged from experiment that
the best of lime water are fixed air
& calcareous earth. Magnesia is

[illegible] days from the different [illegible]
[illegible] and have [illegible] commencement [illegible]
with the [illegible] and [illegible] concurrent opinions
of the [illegible] [illegible] to be [illegible]
the [illegible] [illegible] the [illegible]
[illegible] [illegible] [illegible]
[illegible]

[illegible] [illegible] absorbent [illegible]
becomes inert before it reaches the stomach
the common notion of the Bleom [illegible]
[illegible] ill founded since it can [illegible] no more
inert than a [illegible] Calf's foot [illegible]
Bleom is not the cause but the effect
of a weak stomach, & other deteriorations
[illegible] [illegible] frequently given [illegible]
[illegible] of warm water [illegible]
[illegible] make them work more [illegible]
not be given in large quantities because [illegible]
overload the stomach temporarily [illegible]
[illegible] from [illegible] [illegible]
[illegible] [illegible] [illegible]
[illegible] [illegible] [illegible]
[illegible]

Selenite & Gypsum can be scraped with a knife, become liquid by great heat, and strike fire with steel. Hydrophanus becomes transparent, & afterwards opaque, & becomes a hard, & vitrified substance. Fluors are also a kind of Selenite, of different colours, viz. Violet, Green, Yellow, & Pellucid. Opalus, Hydrophanus, Metals, Metalls, acids, Salts, Sulphurs, & Bitumens are reduced into a granulated form then called Alabaster, or Gypsum, resembling those of Epsom Salt, or a Cubical form, a lamiated form called Spar, or Rhomboidal Marcasite, Pale white & very brittle, oblong Crystals, white, Green, Blue, & Red. There's a gypsum spar also white, sometimes black, sometimes white. Pitchblend, Pitchstone, & Antimony which consists, & may be reduced to an impalpable, under foot, on the ground, on the projection of Crystals to unite. Opals are so hard, & like to scratch, but also very little the strength of grinding Corne. Opals like Lunar Asbestos, Pulverized Lime, Lunar Asbestos, a Salt, & Sulphur, & Vegetable Vinegar, a Salt, & Sulphur, & Vegetable Vinegar.

Clays are found in great abundance in
every country, are of a soft nature, form a
ductile soft paste with water, gradually
hard by fire so as to sometimes strike fire
with steel, & do not effervesce with acids
Fire purifies all clays by dissipating the
inflammable matters with which they are
mixed. They are much used in making vessels;
in which case sand is added which lessens them
more. The acid is often mixed with a fine
clay alum which bears the most violent
heat by without any considerable decomposition. Fire easily dissipates the acid
from the calcareous earths with which it is
combined. Alum is easily decomposed by
either Mineral or Vegetable Alkali, the
acid & the former forming Sal. Gemel, with
the latter Tart. Vol. & the clayey precipitate
to the bottom. Used to decompose
Nitre & Sal. com. The Nitr. & Muriatic acids
obtained in this manner are the best. In
inflammable bodies & calcareous Earths de
compose it. Lime & Fixed Alkali do it. Dissolves
in water merely by means of the Nitrous, the
most destructive & noxious chance. Alum
[illegible] water & precipitated by lime:
[illegible] by the Nitrous [illegible]
is evident from the taste, & effects of dissolving
the vegetable & animal matter mixed with

The water is made as clear as Rock water.
It is used also to clarify Wines & does it surprizingly quick. Clay or Lime is also often added with the view but they act mechanically whereas the Alum acts chemically.
Black Alum is alum combined with Iron & much more subtle & powerful than the other. It found Native, & is got from Lakes by Inspiration, Evaporation & Crystallization.
Sal Vol. & Muriatic acid act on clays. Clays will also form Alum. Clay & Vinegar with Earth & Salts. Calcareous earth renders Clay fusible. Clay is found with no acid but the Vitr. with which it is often combined form alum. Water can not be Inflammables separated by fire, nor by Iron. Fire & water can't separate the Iron. Iron is more generally diffused thro Nature than any other metals. The clays are hardened from the Pyrites by water. All the Bolus, Terra Lemnia & Sigillata; the Lates of Spain & Marsh Brown Rotten stone, Lapis Calaminaris, Scales or cuticles of Salt Petre, Lapis Lazuli or Lapis stone, & Lapis Ly. are Clays. Lapis Lazuli contains more Silex & Lesser Clay in its composition. Vegetable is more changed into clay in the Earth. Wood is a kind of clay.

Flints or Pebbles are remarkable for their varying & shrinking fire with steel. The reflection on them by themselves & others is very exact. Iron pure they are of a white colour. Neither have no effect on them. Pebbles & Flints resist water & fire. The Flint is reduced by salts. Pebbles more generally by a fixed alkali called Kelp in Scotland in making the best & clearest glass. Pebble is made of it. Flint is generally used in the best flaming glass, with Lead & Tin. Iron burnt makes the strongest glass. Too little alkali makes the glass vitrifiable & too much makes it crystalline & soft. Salts of Tartar & Nitre make the white, clear glass of which Decanters are formed. The glass is soft & easily melted while there will be redness & blackness as the broken bottles are. Cobalt & Saffloure are used in making coloured glass. The calx of Iron & Tin [illegible] make a green [illegible] Smalt & Saffloure also are made [illegible] Saffloure is [illegible] Smalt. Saffloure is used on [illegible] spread in Africa. [illegible] particular [illegible]

(by called) Kaolin, & of Flint called Petuntz.
[illegible] natural & artificial earth.
Hitherto in England it has rarely been attempted to make china. It may be, it seems, kind
of most [illegible] which is separated by washing
& reducing it to a powder. The Enamel is
made by grinding glass ware, similar materials
with water & adding the ware into fine
powder, which, by the aid of Lead, is the fin
ness melts & then forms the enamel. The different
colours of it are owing to the calcar of metals
mixed with which it is mixed; & the colour
of the Porcelain itself is owing to earths or
vitrified & incorporated with it. The plenty
of the fusion of the calcareous earths.
They are insoluble in water, but by simply
calcining them & mixing them with one
fourth part of Sal. ammon, they are dis-
solved in water. Equal parts of borax & the
[illegible]
[illegible]

Chap. 20. Solution of Salt Spirit of
water by the addition of an alkali precipitates
a magnesia alba &c. Fullers Earth &c.
are neither affected by Earth nor Sulphur,
therefore are considered them chemically
pure. Q. is consistence of the substance that
shall now give the Mineral division of it
stones or different earths which are in it
in the air & water, have in regards to
Heat. Common Sand is composed of small
particles. Gravel is of the kind. Flint is
not affected on by fire without the addition
an Alkali. Free stone is composed of small
particles of sand. It is used in Chimneys &c
when exposed without the addition of small pieces
of Mica, Pumice-Stone, Portland-Stone, Marble
Stone, [illegible] are species of Flint. Q. Why
don't strike fire with steel, it answers
lower the calcareous to inflammable matter
on account of the Sulphuric acid. The air
in such stone is of the same nature the
iron Flint is very hard, which has ex-
ceed Flint by the addition of Iron, indu-
ced by the air, & is particularly to
[illegible]

[illegible] can [illegible] [illegible] indeed [illegible]; therefore both opinions are true. ~~[illegible]~~ Onyx, [illegible], [illegible], Cornelian stone, Agate, Moco stone & [illegible]. Belong to the [illegible], Opal [illegible] of [illegible] that the marks observed in [illegible], [illegible] their [illegible] are more [illegible] [illegible], depending on the imagination of the [illegible] as numerous facts have proved. [illegible] the contrary, we must allow to [illegible] a creative power, which is impious.

Jasper, Porphyry, Lapis Lazuli, Quartz. [illegible] the [illegible] of elements come under the [illegible]. [illegible] is not so hard as flint & [illegible] without any addition. Quartz is seldom [illegible] of Metals, id est. [illegible] [illegible] effervesce with acids. Elements, [illegible] [illegible]. Chrystals strike fire with ~~[illegible]~~ steel & [illegible] with intense heat. [illegible].

[illegible], Topaz both true & false. [illegible] [illegible], Emeralds & Berril belong to the [illegible] order chrystals. Emeralds the most [illegible] valuable precious stone. Lapis lazuli contains [illegible]. The colours [illegible] [illegible] are owing to the [illegible] [illegible] [illegible] [illegible] [illegible]

of different & pure colours. The rock
Crystal or Pebble contains water. The
rock or petrified Earth is composed
of the Silica or compact of small & close wh.
particles which have a sparkling & pure con
appearance, called the glimmer. Talc or Isin
glass is very pliant, is transparent &
has singular properties. Gypsum or Selenite
is a crystalline stone greatly like the Talc. The
Asbestos & Byssus are very much alike in
every respect. They are made up of fibres
lying parallel to each other. They often now
run into a fine cloth; they have been
formed into aprons, hand kerchiefs & purses.
German Turner made a book of his
observations on the nature of Asbestos & the
specimens he described of all the colours of
matter. He found in all parts of the
The inhabitants of Siberia make their
Table cloth instead of glass. Asbestos is found in
Pennsylvania & the best of it in Corsica.
Fossil called Cotton Stone is now used
for wick of lamps. Calcareous Earth, Clay &
Loadstone other fossils are frequently found in
Coal pits. Notwithstanding the Earth is very good
respecting the mineral kingdom, the
surface of it is very rocky
& barren.

Alum is used in Medicine as an astringent. Alum. Ust. is the safest escharotic. Alum. coag. is good for sore eyes. [illegible] the combustion of [illegible] [illegible] Inflammables are [illegible] [illegible] [illegible] [illegible] inflammable [illegible] [illegible] heat, can't be separated from [illegible] [illegible] absolute; it can't be [illegible] [illegible] contents [illegible] inflammation [illegible] in the state of inflammation, [illegible] of flame is owing to the [illegible] [illegible] The reason that the surface [illegible] [illegible] is that the air comes in contact with the surface. The broader the surface [illegible] [illegible] the more [illegible] [illegible] of the [illegible] of the wood [illegible] the [illegible] the more complete; the consumption of the wood the more [illegible].

[illegible]

perfect.

[illegible] metals are [illegible]

[illegible]

[illegible] & Bismuth.

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible] acid decompose [illegible]

[illegible] without flame; the [illegible]

[illegible] violence; the Muriatic [illegible]

[illegible] under attraction [illegible]

[illegible] metals but Copper & Zinc [illegible]

[illegible] inflammable. [illegible]

[illegible] metals. [illegible]

[illegible] Copper united with [illegible]

[illegible] heavy. [illegible]

[illegible] malleable but not in water. [illegible]

[illegible]

[illegible] Mineral [illegible]

[illegible] calcination [illegible]

[illegible]

[illegible]

[illegible]

ciple of inflammability. Its lustre [illegible] diminished by long exposure to the air, but may be renewed by exposing it to the [illegible], [illegible] [illegible] [illegible], [illegible] [illegible] [illegible]. White bodies absorb the light & emit it in the dark. Rotten wood, [illegible] [illegible] [illegible] are luminous in the separation of their [illegible] which is more rarely effected by the separation of their parts by putrefaction [illegible] in [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] which [illegible] [illegible] [illegible] [illegible] [illegible]. The [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] is [illegible] to an [illegible] [illegible] from the bodies of animals of the [illegible] [illegible] [illegible].

[illegible] sublimes in a manner [illegible], [illegible] [illegible] [illegible] exposed in a great [illegible] [illegible] being nothing [illegible] [illegible] [illegible] [illegible] [illegible] but [illegible] [illegible] [illegible] [illegible] in a [illegible] [illegible] [illegible], [illegible] [illegible] [illegible] only, with the [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible], zinc & [illegible] [illegible] [illegible] [illegible].

[illegible] [illegible] extensive smell. [illegible]
[illegible] of sulphur. It's native, or artificial.
[illegible] divided into virgin & mineral.
The virgin is found in Guadaloupe in a yellow
crystalline, & solid form, & floating on the
top of springs. The mineral is mixed
with calcareous earth, clay, [illegible] & [illegible] in
pyrites of hundred [illegible] [illegible] [illegible]
[illegible] composed of sulphur [illegible]
[illegible] iron & clay [illegible] [illegible] when it [illegible]
decomposition in the air forms alum. The
white where Iron is abundant, green where
copper & blue where Iron does. [illegible]
[illegible] the [illegible] [illegible] [illegible]
[illegible]. It's sublimed from this by heat.
Mercury & Antimony contain the greatest
[illegible] of it from which as well as from
the other metals it's obtained by sublimation
& calcination. It's likewise [illegible]
in Salfaterra by sublimation. [illegible]
[illegible] [illegible] in large quantity [illegible]
[illegible] [illegible]. It's unalterable by the most
intense heat, if it's confined in a vessel. The
[illegible] it suffers by combustion, [illegible]
[illegible] [illegible]. It's [illegible]
[illegible] [illegible] [illegible]
[illegible] which sulphur and [illegible] [illegible]
[illegible] soluble in water or air. [illegible]
[illegible] [illegible] it loses
[illegible] boiling.

No acid, alkali, metallic, earthy or inflammable matters act on it without heat.

Mundic is a synonym of Pyrites. The more Copr. Pyrites contain the [illegible] more sulph. the more copper the less sulph. & the more arsenic the less sulph. Characters resemble nearest those of pure Cop.

Lect. 22 Feb. 7. Fluids are capable
[illegible] expansible effects. Which
[illegible] in the power of incredulous
[illegible] the known fermentations, and
[illegible] the chemistry is elegantly
[illegible]
[illegible] Fluids
[illegible]
[illegible] to be perfectly
[illegible] expansion or of power to effect
[illegible] combustion, but this is not certain as
the water it contains may by the heat
be converted into vapour; & the matter
[illegible] always contains some. Ether is
produced from its mixture with the
dest. Mineral acids; & Cast. of Ammon.
[illegible] made an aetherous Ether. Ether
of Alcohol distilled together with K.
[illegible] ther which is a colourless, very volatile
[illegible] inflammable fluid of a fragrant
[illegible] smelling odour.

body

A

[illegible] with a little degree of [illegible] [illegible] [illegible]
which by reason of its [illegible] [illegible] very light;
if a lighted candle be put in contact with the sur-
face of the water, it setts all on a blaze, but it
is the Ether on the surface of the water that
burns. In this manner all the chemical [illegible]
[illegible] [illegible] water [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible] with [illegible] inflammation
[illegible] [illegible] the lighted body touch the surface it
will be set in a blaze owing to the [illegible] inflammation
[illegible] [illegible] of some [illegible] that [illegible]
[illegible] [illegible] [illegible] have [illegible] [illegible]
[illegible] [illegible] phenomenon [illegible] [illegible]
[illegible] to be mixed with any of the [illegible]
[illegible]. [illegible] [illegible] [illegible] with
[illegible] [illegible] [illegible] [illegible] [illegible]
[illegible] [illegible]. The proportion used is one [illegible]
[illegible] [illegible] [illegible] [illegible] [illegible]
[illegible] equal quantities [illegible] one part of [illegible]
[illegible] two [illegible] of [illegible] [illegible] the [illegible]
[illegible] [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible] [illegible]
[illegible] [illegible] the [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible] [illegible].
[illegible] [illegible] [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible] [illegible]

[illegible] [illegible] alkalies dissolve partially in [illegible]. The
[illegible] [illegible] in order to [illegible] make [illegible]
be done by fixed alkali or [illegible] if fixed alkali
[illegible] [illegible] [illegible]. [illegible] more caustic the [illegible]
the more perfect the solution. From the mixture
of equal quantities of [illegible] & Vol. Alkali
in [illegible] a [illegible] solid mass is formed called
[illegible] Helmontii. In [illegible] the mixture
[illegible] dense coagulum is formed, [illegible]
[illegible] [illegible] [illegible] [illegible] [illegible] fluid.
[illegible] occasioned by the [illegible] [illegible] absorbing the water
& suffering the Vol. Alk. to concrete [illegible]
That a very strong attraction for water. [illegible]
or none of the earths [illegible] [illegible] [illegible]
[illegible] the state of Sal. Ammon. [illegible] [illegible]
[illegible] Phosphorus; precipitate Neutral salts
from their solution in water, [illegible] attraction [illegible]
[illegible] [illegible] feebly on Metals, except [illegible] which it
[illegible] strongly & [illegible] [illegible] the Colour
[illegible] [illegible] by supplying them with [illegible]
[illegible] [illegible] [illegible] their [illegible] [illegible]
[illegible] [illegible] & is [illegible] [illegible]
[illegible] [illegible] [illegible]. Æther is the lightest of all
~~[illegible]~~ liquids.

[illegible] [illegible] taste; for [illegible] [illegible]

are volatile & empyreumatic [illegible]

[illegible] in [illegible] [illegible] & that [illegible]

[illegible] the [illegible] [illegible].

[illegible] are lighter & others heavier than

water. [illegible] require [illegible] [illegible]

[illegible] to freeze them. volatility They [illegible]

[illegible] in their water. They [illegible]

[illegible] [illegible] the [illegible] [illegible]

mixture [illegible] the [illegible] [illegible]

[illegible] [illegible] [illegible]. [illegible]

unite with them with [illegible]

[illegible] more than [illegible].

[illegible] [illegible] [illegible]

[illegible] have no action on [illegible]

have small attraction for alkalies, &

with them soap. The more caustic the

alkali the more intimate the [illegible]

[illegible] [illegible] [illegible]

[illegible] [illegible]. They have no [illegible]

[illegible] [illegible] the [illegible]

[illegible]

[illegible]

[illegible]

[illegible]

towards the bark. They are found chiefly in Pine tribes, & also in some aromatic & the [illegible] Vessels which are the [illegible]. They are secreted in the Glands which [illegible] been [illegible] of those which receive nutriment & convey it to [illegible] [illegible] which receive the diff[illegible] [illegible] aromatic [illegible] and [illegible] the fragrancy of vegetables & [illegible] called Spices. [illegible] some appear to be Volatile & [illegible]. [illegible] should be seen in the still [illegible] the matter cells, which brings them [illegible] their coming in contact with the [illegible] which is [illegible] them. The [illegible] phlegm, then [illegible] with the oil. The [illegible] are used. The [illegible] in the former [illegible] in the [illegible] preferable [illegible] The oils [illegible] are [illegible] with [illegible] parts. [illegible] the oil. [illegible] & Benzoin [illegible]

Almost all the Sand from south, and an only free that that in the purpose of water. The cracklings were found in Pumice stone. It is the dove it among to the cinders, nothing portrayed of an saint. Therefore part the chemical water without that effectual be converted into pure salt, since, equivalent with the tarnish, [illegible] obtainable Oils make wal well in the shore Veg.le Alkali. Thermometer with nearest Pacific Ocean. Castile soap is made of the Oil of Olives & the salt of the sea by the a mineral alkali; are [illegible] Pacific Ocean it does to make the Pot more caustic; the reef that made [illegible] Lye dissolving 4 or 5 cashell of Common Salt to Oil of [illegible] Lye concerning of Petroleum [illegible] Pricking the water of fall of the [illegible] Pot close forward [illegible] the [illegible] the [illegible] accounts from the [illegible]

The Oil men in England deprive the Oil they get from the coast of the Mediterranean of its rancidity by throwing in some Salt. which attracts & dissolves the water & mucilage it contains to which it owing its rancidity; & preserve it from rancidity by northern throwing in fresh Salt. the inferiority of Oil kept in the Castile or olive tooth owing to Animal Oil, but this might be remedied by not substituting for it the oil of the sun flower seed which yields oil in great abundance & equal in quality to the Oil of Olives. The powerful action of Soap in Washing Cloaths or animal Secretions is owing to the caustic alkali in it which is not saturated with the Oil. They dissolve the calx of Lead, & prevent it from sweating Serve used to prevent Instruments from rusting. Animal & Vegetable substances are prevented from Putrefying by being covered with Oil, their eggs are preserved much better than in Salt, which unless it completely covers them, leaving air between it & the remarkable in them, in turning them rancid. — —

Washing them in water slightly, by introducing more moisture which favours their fermentation, promotes their rancidity, but washing them frequently in a large quantity of hot water, by dissolving the mucilage & carrying it out prevents their rancidity: the best way to preserve butter is to press out all the moisture perfectly without washing it. They are got from sunflower, flax seed &c. & from animals as spermaceti, tallow, wax &c. Bitumens are inflammable, mineral bodies, & are divided into fluid & solid. Naphtha is the finest of them & is little else but the pure principle of inflammability. It burns when on fire without the contact of flame; there is stones abounding in Naphtha, a piece is made use of to give light by rolling on a parcel of blind stones. It is impossible to set gun powder on fire with flame but may be with coal, steel &c. Petroleum is an inflammable liquid Bitumen, found on the Earth in Persia Water parts of the Globe running down hill, in the surface of springs. In Barbadoes it is called Mountain or Barbados tar. Coals are solid Bitumens differing in degree of inflammability.

Jet is the finest Coal. Kilkenny very bad.
Cannel coal is very good. Acid of Pitcoal &
Tar is an excellent preservative against wood
from rotting. Amber is an electric, a solid
Bitumen, but was once fluid as appears
from the insects found in the midst of solid
pieces. Naphtha and Petroleum are distillations of
the oil of Petroleum. Remember small quantities of Naphtha are used
in general, & some programs useful Chem.
The aromatic balsams are the mixtures of Bitumen & Fluid Bitumen.
Nitric acid & Oil of Turpentine mixed together gave a
smell very much like Musk & after 24
hours the mixture produced might be used
with advantage instead of Musk. Bitumen
mostly in small pieces on the coasts of the
Mediterranean & never in pieces exceeding
lb 5 or lb 6. Petroleum comes from the bottom
of the Sea. Naphtha never enters the cir-
culation, as it is insoluble in any of our fluids
but passes unchanged through the alimen-
tary canal. Bitumen good medicine in Dysentery
in which it acts as a gentle constant purgative
by taking off the determination to the
skin.

Minerals are found forming layers in the heart of the Earth, stretching through the Rocks, or on [illegible] on the surface of earth. [illegible] have an analogy with organized bodies [illegible] require an [illegible] of [illegible], coloured, saline, [illegible] from the concrete [illegible] making [illegible] Alkali & Acids, when [illegible] being light generally become thicker & more coloured & [illegible] matter [illegible] vegetable or animal [illegible] an altogether from light. Their colour depends on their [illegible] is modified in transparent vessels. In exposure to the [illegible] thickens & dries them, thus [illegible] dissipates their [illegible].

[illegible]

[illegible]

[illegible]

by means of Charcoal, Inflammable air, &c. [illegible]

[illegible] the fire, the [illegible]

weight, as has received [illegible]

[illegible] & acts [illegible]

[illegible] Combine with [illegible]

[illegible] in water, & some [illegible]

[illegible]

[illegible] of Metal [illegible]

[illegible] Solution. [illegible]

in the Country the Earth, metals [illegible]

with Earths. [illegible]

[illegible]

[illegible] by solution the [illegible]

1st Metals become heavier by calcination [illegible]

either in the acids or by fire; whereas a metal

united with an acid [illegible] one fourth [illegible]

weight by the fixed air escaping in its reduction

2nd Metals cannot be calcined in a confined place

unless air supplies of fresh air, whereas the

[illegible] be dissolved in acid with fixed air [illegible]

[illegible] 3. Caustic alkali [illegible] become [illegible]

by being placed near calx during its reduction

[illegible] the resulting or calcination. [illegible]

[illegible] because calx communicated the [illegible]

[illegible]

[illegible]

[illegible]

Lect. 25th Inflammable air is absorbed
consolidated by a Metal or Metallic calcination.
It seems is a heavy, compact, brittle body
highly of appearance. It seems sometimes
larger, & sometimes in smaller pieces. They
change their colour by exposure to air. Here are
red, yellow colour & black. Their Colour of
Red & red of Iron, & Mercury or calx of
Lead are their red colour. In the action of
the Inflammable air; & Flame cured
with Sal. Nitre are their red colour to of
phlogiston air detached from the Nitre in
decomposition or in the union of the Nitrous
acid with the Phlogiston of the Metal. Arsenic
cured by gentle heat. Yellow sulphur emits
a pleasant smelling like Garlic. It dissolves
in all the Mineral acids, & in the fixed
Alkalis with effervescence. It effervesces with
Fixed in producing Fumes. It produces no change
in common Salt, & bears no relation to
other substances. Decides with Sulphur
[illegible] ferruginous. —

Combined with lead, it makes a very good flux. It has a strong attraction for Iron. This is composed of an acid, & Alkali. The proportion is, 20 parts of acid, & 80 of Alkali. This Alkali is formed a fixed Salt that deliquiates in the air. There is a strong attraction to Copper giving it a white colour, & making it very brittle, & hard. In this manner, the white Metals are made. Mineralized with Earthy matter, Arsenic is pure by sublimation. There are three methods of detecting Arsenic in Bodies; viz. 1st by throwing it upon coals; by which it immediately smelling like Garlic. 2nd by placing it between two plates of Copper, binding them together tight, & putting them in the fire if the matter contains Garlic, the copper will be tinged of a white colour. 3rd Another method which is to mix the suspected matter with a solution of blue Vitriol, which is the manner; viz. dissolve the matter in a strong solution of fixed vegetable alkali, & add this solution with a solution of blue Vitriol, if the matter contains Arsenic, it will precipitate to a bright green colour.

It has communicated to me the following
receipt which I am good to answer better than
any thing else in the cure of Cutaneous Er-
ruptions. Pour Qts of boiling water on ℥j of
Stramonium, let it boil until ℥j is wasted
away, then add Wool, & wash the erup-
tions with it. Care must be taken
not to let boiling but the water come in
contact with the skin, as it is very irritat-
ing. Repeat in 15 hours if it weighs ℥j of cold
water, ℥ eight of boiling. A Gentleman
in the West Indies, who took ℥j of Stramo-
nium instead of Lettuce was cured by swallowing ℥j
of the large dried seeds of Stramonium water, which
he was obliged to swallow him for several hours, & effec-
tually the Stramonium cured him.

Scalds are separated from the foreign matters
with which they are mixed, by Squeezing.
Blisters & Pustules. Extravasated Blood is
prevented from their Bed & from Lymphatics
& Cells surrounding. Prevent the separation of

Arsenic to sublimate from Metals by heat, these being very Volatile. After these Mixture is made use of but [illegible] usually combined with [illegible]

All the acids act on the Ores of Metals.

[illegible]

[illegible] Quick lime, [illegible]

Imperfect Metals are [illegible]

[illegible]. Perfect suffer no change on exposure to Air & fire, & possess both [illegible] & ductility. Semimetals are [illegible] malleability nor ductility. [illegible] possess both Malleability & Ductility. [illegible] acid and melt Ores, [illegible]

Gold is discovered by aqua Regia, which
dissolves it & is precipitated after-
wards by alkalies, or Dissolvents.
Saltpeter & Arsenic or Orpiment is
sublimed. Alkalies are used in Ope-
rations to promote the fusion of the
Earthy parts with others. The litharge
serves. Sandever is a good flux. Smith
turns off Scale Metals, tal commons
a little glass is a better flux than
the alkalies. Charcoal is a flux and Pro-
motes the calcination of the Metals by
great heat & yields fixed air. They thus
be condensed from the air. Quick lime
is the only earth used as a flux & is
liable to the disadvantage of the alkalies
becoming with Sulphur & Arsenic &
forming an Hepar which is an effec-
tual solvent of the Metals. Vitrifiers
[illegible] are [illegible]

[illegible] are melted together
[illegible] Hemispheric.
[illegible] Saltpeter
[illegible] for they are separable & the Potash
[illegible]

Lett. 91. Mercury is the heaviest of
all bodies, but yet Lead. Mercu-
rius precipitatus per se is a pure Mercury
not congealed; but when mixed
in Water Brass &c. Glass &c.
It is very volatile, & may be entirely con-
sumed in a degree of heat not so
greater than that of boiling water.
It is triturated with Crabseyes, Gum Ball.
Gum & Gum water only and miscibile
in dissolving the particles for its more convenient
& effectual exhibition. By trituration part of
it is also calcined. It calcined in a degree quite
less than that required for its vivification. The
pure calx of a red colour is
also, from the hypothesis, & is
properly called Precipitate. It and
it, but by the addition of Refractory
the latter is a yellow powder called
Turpeth Mineral. This is also not
so inactive & dissolves more readily.
To find dissolved an equal weight of Mercury
& separate red colour from the Phlogiston by

[illegible] are made by mixing 5lb
[illegible] with [illegible] ammon [illegible] & after
the effervescence has ceased, adding Argent viv.
[illegible] which must digest in a gentle heat till
the ☿ is dissolved, & then adding Aq. Rosar [illegible]
[illegible] of these drops contain ☿ gr ½ & are given
[illegible] Muriatic acid is capable of
dissolving the Mercury only in its cal-
cined state. The corros. sub. is made by
mixing [illegible] comm. & ☿ in equal quantities,
& then subjecting them to heat, [illegible]
[illegible] mixture is evaporated to a red dry
[illegible] salt. But it is precipitated without
[illegible] calcined by heat & sulphure.
[illegible] is prepared from [illegible]
[illegible] Muriatic [illegible]
[illegible] ☿. Muriatic acid
[illegible] ☿ more readily [illegible]
[illegible]
[illegible] cannot be separated from
[illegible] had no [illegible]
[illegible]
[illegible]
[illegible]

[illegible] sub. is compound of [illegible], [illegible] [illegible] [illegible] sub. is colourless [illegible] & imparts [illegible] an acrid taste to the [illegible] [illegible] the acid being [illegible] by the [illegible] [illegible]. Calomel is made by sublimation [illegible] times.

[illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] Kingdom. [illegible] [illegible] [illegible] [illegible] [illegible] with some of the [illegible] [illegible] [illegible] sulphd. with [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] ~~[illegible]~~ mixture of [illegible] & sulphur, [illegible] Cinnab. [illegible] by sublimation [illegible] [illegible] [illegible] with all the [illegible] [illegible] [illegible] of Iron; [illegible] [illegible] [illegible] [illegible] [illegible] very brittle. [illegible] [illegible] may be taken [illegible] [illegible] [illegible] [illegible] by sublimation [illegible] by pouring the [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] only [illegible].

The Mercury can be separated from the Sulphur by distillation.

Cinnabar is found in mines in Germany & Turkey. It is sometimes found native, but more frequently in combination with the mineral, from which it is separated by distilling it with Iron filings, lime &c.

Mercury is the least active of the metals.

Medicine as it can be digested is inactive in the stomach, which being a dilute acid, like Vinegar or lemon juice in its calcined state. It is seldom given in its metallic state, nevertheless as it is known in trade it is possible that it may acquire a new life.

Liquid Mercury kills the parasites of the skin. It will penetrate into the pores of the skin, & in vapor it enters

Lean Mercury is purified by iron filings
which retire it by Δ. Mercurial Plaisters
[illegible] bitter, [illegible]
[illegible] perspiration [illegible] the parts. [illegible]
[illegible] Mercurial
[illegible]
[illegible]
[illegible]
[illegible] way of making [illegible]
[illegible]
[illegible] of the [illegible]
[illegible] the Powder they [illegible]
[illegible]. Particular care should be [illegible]
[illegible] laid with the least [illegible]
[illegible] should be [illegible]
[illegible]
[illegible] a little of the [illegible]
[illegible] the eye, [illegible]
[illegible]
[illegible] only [illegible]
[illegible]
[illegible]
[illegible]
[illegible]

[illegible] To the [illegible] [illegible] [illegible] in the [illegible] [illegible] the latter [illegible] [illegible] the latter [illegible]

[illegible] [illegible] with [illegible] with [illegible] in the [illegible] [illegible] [illegible] begin with [illegible] [illegible] is the most [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]

[illegible] is a semimetal. [illegible] [illegible] regular [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] acid [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] acid stronger [illegible] [illegible] [illegible] [illegible].

[illegible] acid acting with [illegible] is turned blue. The
[illegible] is the only [illegible] solvent of the [illegible]
of Antimony. Butter of Antimony [illegible]
[illegible] fumes, [illegible]
[illegible]
[illegible] Antimony
[illegible]
[illegible] the Antimony, [illegible] composed
[illegible] Emetic by [illegible] the pre-
[illegible] of the Butter of Antimony [illegible]
[illegible] of Tartar, which he calls [illegible]
[illegible]. All the Vegetable acids [illegible]
[illegible] metallic state, broken more or less [illegible]
[illegible] would be made in [illegible]
[illegible] they attract the Vegetable [illegible]
[illegible] than the Antimony. [illegible]
[illegible] on Antimony, when [illegible]
[illegible] always combined [illegible]
[illegible] Earth. It is dissolved [illegible]
[illegible] Antimony [illegible]
[illegible] all the [illegible] substances. [illegible]
[illegible] in water [illegible]
[illegible]
[illegible]
[illegible]
[illegible]

It separates from the Ores in [illegible].

[illegible]

[illegible] with the mixture [illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

deflagrating a mixt of nitre [illegible]

[illegible] oleum.

[illegible]

[illegible]

Nitre [illegible] Some was [illegible]

[illegible] by the addition of Nitre

[illegible] Tartar [illegible]

greater attraction to Sulph^r is used to separate sulph^r from Antimony. [illegible]

[illegible] in the antimony and is insoluble [illegible] of our fluids. The Antim is an [illegible] medicine [illegible] strength [illegible]

[illegible]

[illegible] Antimony [illegible]

[illegible]

[illegible] Antimony. Emetic Tartar [illegible] made by rubbing the residuum remaining

[illegible]

after making Butter of Antimony & which is the
P. of the Tart. corrosiv. & the sulph. of the Antim.
Vitreum Ant. & sul. & tartar emet. make a
very good Febrifuge powder. The former should
be used in Winter and inflammatory Fevers
only, & the Tart. Emet. in Summer when
Relaxed, and the Heart & Arteries weak which
don't receive the Tart. Emet. powder
so strong as the pure salt are, yet
the proportions are, one scruple for grain, that
extends to 10 grains of Nitre which must be
repeated every two hours, & the 15 grains of Tart.
Emet. which must be as often repeated. These
powders are very effectual by universally
bringing out a sweat without increasing
action of the Heart & Arteries. The above
quantity of Tart. Emet. don't vomit or nauseate
& must be increased till it does, since it
will possibly sweat without operating on
the stomach for the ~~may~~ must
first Nauseate. Whatever sweat does come
on before nauseating the stomach is
must be accidental.

[illegible] make [illegible]

[illegible] is of a reddish blue colour, [illegible] very little ductility, which is greater [illegible] deprived of its [illegible] [illegible] tot; melts in a degree of heat little inferior to red heat; evaporates entirely in a great heat. Vitr. alb. is formed from [illegible] crystallized Sal. Vitr. [illegible] Fluor. Spat. [illegible] red fumes [illegible] [illegible] [illegible] Fluor. [illegible] Calamin [illegible] [illegible] Vitre [illegible]

Zinc so firmly. We don't allow this pure
Ore can be mixed with all the Metals but
Cobalt, Bismuth & Nickel. Melted with Tin, it
forms Pewter; with Lead, the ordinal Sort of Pewter
with Copper, Brass; with charcoal, a little
Copper, Gun-metal-black. It is most frequently found
combined with Clay. Calamine, a fossil
zinciferous substance. Zinc with the metals
specific Cobalt & Zinc.
The specific gravity is attract. Sol. Prussic
decomposed by Zinc, the Muriatic acid
attracting it more strongly than the vegetable
Kali which escapes. Nitric acid is the proper
solvent of Bismuth, the precipitate by
alkalis or Spt. Vin. is called Spanish or
Pearl White which is used by the Ladies
as a cosmetic, but is dangerous, & finally
leaves the skin yellow & wrinkled. The white
used combined with Bismuth, substitute for Cerussa
an exposure to air acquires a black colour
Quicksilver readily with Sulphur. All the metals
unite more readily with Sulphur, after having
lost part of their Δ. Zinc has a little
Tooth. Cull attracts λ. Iron and other parts of this
Metal is a powerful Fluid for all earths and
Cobalt & Nickel some [illegible]

Simple Metals. Lead, its specific gravity is 11 to 1. a pellicle appearing on the surface of melting lead is a sign of its tendency to calcination. Litharge is a calx of lead; it has acquired the name of Gold from its deep orange colour. Minium is made by bringing the flame in contact with the Litharge, & by keeping a great heat under it. Sp. Vin. is composed of Δ. acetous acid, & water. Saccharum Saturni is a crystallized salt formed by dissolving lead in Vinegar, from which it is separated by Alkalies & lead. Ceruse is lead corroded by Vinegar. Vinegar distilled from Saccharum Saturni is very strong Liquor Fortis. Sp. Vin. fort. Mercury was in Alchymy, strongly attracted Δ. It strongly attracts lead, with which it unites, & forms a most refractory metal, that no fire can melt. Poison Lead is plunged by drinking or washing in a solution of a calx of lead, vegetables in acids that, rather it proves pernicious. in fact, Corrosives reduce to a calx of lead reduced to its metallic state, that by burning it in Alkalies have no action on lead.

Orpiment is made of equal parts of Arsenic & Sulphur. Red Realgar is formed of equal parts of Arsenic & Sulphur. Sympathetic Ink is a solution of Sugar Litharge Water, which is written on paper & dries in a Wall, but black colour is given it by exposing, blowing or washing it with a solution of Hepatic Sulphur or Orpiment. Lead is discovered in Wine by Orpiment which makes it Purple. Another colour should be mixed with water, because the Oil (or Therefore Sugar air) gives the calx of lead in the Cairn. A Turns them black. Vit. and corrodes Lead; the Nitrous dissolves it. The calx are heavy earthy bodies. It doth strongly clay, Lime or fine middle substances and on lead, with which it is [illegible] from the Officinal Registers. It [illegible] is used to purify silver. [illegible] almost [illegible] It is white. Its specific gravity is [illegible] times. Its powerfully attracted by the Nitric acid. It. the vegetable acids attract it. It is most frequently combined with Arsenic. Metals have no action on it. It melts [illegible] brittle. Its the lightest of all metals. Its a silver coloured metal, neither [illegible] nor [illegible]. Metals have a [illegible]

Mercurial attracts Arsenic so much better.

[illegible]

Tartar an ingredient in Brass Cannon, & in Bells.

[illegible]

Lect. 29th Jan. 2d 1781. —

Iron is heavy, sonorous, of a darkish grey colour, very ductile: it is more difficult to melt than any other metal, but requires a white heat to melt it. It contracts a glassy coat in the fire & melts; a piece of iron a little heated melts, if taken out & strongly blown on melts instantly. It composes of a metallic, saline, & earthy matter. It is naturally liable for being attracted by the magnet & striking fire with flint. Vitriol. Green Vitr. or Copperas is a salt of Iron, & Vitr. acid; it contains much water, which escaping from the copperas in a great heat, the copperas is made a pure salt of Iron, & gets the name of Colcothar of Vitriol. Vitriolic acid acts on Iron violently sending forth fumes. Muriatic acid with water attracts it most strongly, & retains it most tenaciously. Nitric acid becomes yellow by attacking Iron, as Iron is known in bodies. Stains taken for green only by the Muriatic acid. The vitriolic acid acts on it. Shall act on it.

it a calx of Iron, yet made by precipitating it from acids by alkalies. Iron on exposure to air, rust or calcines & requires a reddish heat, by the action of the foreign particles in the air probably from the acid escaping from various fermentiny matters. The deep blue colour of some earths, & lapis lazuli is owing to a calx of Iron, & Inflammable bodies.

Fire, & Sal. Immon action Iron. Sal. Immon. sublimed with Colcothar, makes Flos. Mart. Calcareous Earths greatly facilitate the fusion of Iron. Where red sparks, precedes the striking flints & steel together, are small particles of the Iron broken off, & by the heat effected by the violent collision melt, & take fire on exposure to the air, & calcined, they are proved not to be particles of flints. The sparks appearing on striking two stones together, are owing to electricity, have no heat & cause no inflammation. If tongs be attracted sulphur, by rubbing it, & heated hard, by heat, the Acids, & the Acid acts on the Iron, making Copperas. Earthquakes are occasioned by water coming in contact with Pyrites in the act of inflammation & decomposition, & thus fire becoming elastic, & decomposition

since an artificial one can be made by a mixture of Sulphur, Iron filings, & water; or Gun Powder. One cubic inch of Spirit, gives 83 cubic inches of air. Water breaking in upon a bed of Pyrites in its decomposition, greatly increases the inflammation, by which its sudden by converted into aware, elastic vapour, which together with the fixed air rendered suddenly elastic, by its expansibility burst open caverns, removes large portions of Earth, raising some, elevating others, & producing a vast concussion & trembling of the Earth.

A similar shaking of the earth is caused when by the fixed air escaping & expanding, but when this cause is added to the sudden version of water into vapour, the worst of Earthquakes is caused, as that of Lisbon.

A certain quantity of water increases the heat of flame, but a greater extinguishes it. Countries bordering on the sea coast are mostly infested with Earthquakes, & the soil around them is light, loamy & full of pyrites. Islands are owing to Pyrites or Bituminous matter moistened by water, i.e. Seawater, as Sea weed & fishes have been cast up by the sea. Volcanos which are invisible & fire till lately caused by summing, over a vast heated [illegible] mixture of pyrites, lying underneath, [illegible] produced by the [illegible] from the [illegible] the [illegible] involved [illegible] on earth.

bers, which have a Pyrites taste, are imbued by the Vitriolic acid of the Pyrites during their decomposition, mixing with the water.

Iron strongly attracts the Phlogiston of charcoal. Steel is made by laying rods of Iron in contact with charcoal, which, by heat, is converted into Phlogiston & enters the metal, & then suddenly by cooling the red hot in cold water; the more it is hot, the more brittle it is. It cements with all metals but Pt. & Lead. It is prevented from rusting by oil, or a mixture of oil & lead; but the best thing is the superficial blue calx, it is covered with by heat. Water corrodes it, but less by the intervention of the fixed air. Air acid must be mixed with water, to dissolve it.

Gold, Silver, & Platina, & Lead are never found naturally combined with Iron.

It is precipitated of a black colour by acids, astringent vegetable matters. Alkali, Lead & the deprives the Iron of its acid, deposits it of a black colour. Spt. Ven. of a pale colour are the best to preserve the co our of Ink. Lavar. & Sperm. Prab. are also good for purpose. Pale Ink becomes black by exposure to air, & very black Ink becomes pale by exposure to air, animal tissues only as blood; the vegetable black by astringents, nutrients & to

in solution of Iron in the Mineral acid will or
Crystals like green Vitr. The result of this
table acid upon our Iron, the solution appears
green, then yellow, & deposites a calx called
Ochre; — you see that about all Mineral spirits
the best steel is combined of grains. The black
colour which a solution of Iron strikes with
some vegetables, is looked upon as the astringent
astringent, but it is not certain, as Lime which
strikes not at all astringent, strikes a black co-
lour with Iron, & Gentian which has some astrin-
gency strikes a very faint black colour. The Ink
made by Lewis is the best, i.e. one part of gal.
Nut. one part of logwood, three parts of galls
& one & half of Gum Arab. to 40 parts of water.
All black dyes are made in a similar manner.
Leather is blackened & Cloths are coloured black by
first dipping them in an astringent solution
& then in a solution of Copperas. The reason
that Earthquakes are not so frequent in Ber-
muda as formerly is that the island is more in-
habited at present, & a great number of peo-
ple, some level & deep wells, revivified con-
siderably the fixed air, & confined vapours, which
[illegible] essential [illegible]
[illegible]

Lect. 30th. Iron is found in every part of the Globe, & combined with most Bodies as Clays Chalks &c. which are stained, yellow, & blue colour &c. & taller frame in human bones. It is found in the form of a calx in the Blue Earth, & Lapis Lazuli into which combination entered in Lapis Lazuli. Its never found native. There is a very refractory Ore of Iron. It is mineralized with Sulphur, & Arsenic combined together, from which its separated by roasting, previous to its being reduced to form Regulus Iron.

How does it Iron mineralized with Sulph.? Expressed by the Δ Doid & Hoad & Honeth is not delinqt. of Iron & Steel are both in some in medicinal Virtues. Iron from Dissolution & Solution with acids nitric & muriatic, & it neither malleable nor ductile, rather annealed, & heated & gradually cooled, then hard & brittle, but if hammered & heated & recooled, then called wrought Iron, & is rendered elastic.

Copper is almost in transition, very ductile, malleable, but not so fusible as Iron. It does not calcine. Its calx is green. It requires more heat, than another metal. Melted together, form an alloy, it gives grain, which are more common, because it from diff. metals.

Its calx is more easily dissolved than the pure metal. It is dissolved & corroded by almost all the acids. The acid dissolves it by heat, giving out blue vitriol. It always contains some iron. Blue vitriol is got from Copper Pyrites. Its acid acts powerfully. Metals also act on it. Vegetable acids don't act on it, unless in its metallic state; but when precipitated, or reduced to a calx, they act with it, and precipitate it, which is highly noxious, from tinctures of its prussiate or Prussian. Metals substances as contained, prevent its solution, but after the pure metal has dissolved, the Copper has been precipitated by the acid of the air. Metallic bodies are in a unfavorable state, but all solid diminute effect is seen

The Vinegar is obtained in a highly concentrated form from Copper only. Lead alone will precipitate Pot. Alkali of a most beautiful deep blue colour, which deepens by adding more acid. The Pot. Alkali should be in the above proportion. The colour will disappear on adding the mixture is exposed to the air. This colour is owing to a Cuprum Ammon. is made by dissolving the Carb. Pot. in warm water, then adding gradually Sulph. Acid. to precipitate. Distilled then an equal quantity of Pot. Fixed alkali distilled will not readily at first dissolve. Stir. Disagreeable. If. Pot. Ammon. is made by dissolving Ag. calc. Pot. Ammon in a Brass Mortar. Pour off Liquor. Powder. Powder with Pot. precipitate from it. Sediment in the acid. Contents is made to crystallize. Lather with Pot. Ammon. Coffee made with Coffee Flavour of the Chris. Tree is. Flavour to precipitate if from it. Sugar. Water is not hydrometrical.

fabricating it acid, that there is a Fount
in Germany which yeilds over a bed of
Copper Pyrites, that converts into Iron
any Iron into copper, but the truth is,
the Iron gives the copper its Vitriolic
attracts the acid that held it in solution,
& the copper precipitates on the Iron, wh
contracts a blue colour. Iron & wet
all the other Metals. All the mixtures
of Zinc are made of Copper & Zinc.
Brass & Tin form the Metals that
mix of a very high polish, & of water
Bells, Telescopes &c are made, the Iron
must boil to mix with copper, which
does with great noise. Zinc is not
found in all parts of the world. The blue
or green colour of the ground is a sign of
Copper. It is seldom found native, mostly
in the state of a calx, with Earth & Iron.

The Metals are the perfect, the Semi-Metals
resemble each other in regard to their volatilization
recover incombustible by fire & reduction
by agents, Chemists & they are considered
as Alkalines. Leads, Bismuth, concentrate
in convert them partly into oxyd
into glass or vitrifications.

Nitre dont act on them. The acid acts on them & demonstrate the presence of phlogiston. If calcined they may be reduced without addition of phlogiston: this is effected by exposing them to the rays of light, this shows that light & heat are the same but different modifications or diff. forms of the same body. They therefore attract phlogiston. Their phlogiston adheres to them very strongly. They are obtained from their ores by cupelling; the cupel absorbs all the scoria of the lead which have no action on them & thus leave them pure. In this manner the metals may be got out of ores of lead. It is more difficult to separate gold from silver.

Silver dont rust in the air unless a vapour of sulphur in it. It may be melted in a less heat. In copper, when cooling, it vegetates or shoots into branches. The vitriolic acid if boiling on silver, dissolves it. [illegible] must be added to [illegible] Nitrous acid [illegible] silver & then it dissolves [illegible] [illegible]. The colour depends on the [illegible] [illegible]. The silver thus dissolved [illegible] caustic by evaporating the acid, melting [illegible]

Mineral, the acid acts more strongly on silver
than other acids; it acts most on the calx of Silver.
The solution of Silver in the Nitr. acid is used
as a test to discover the presence of Salt in water,
which, if it contains the Muriatic acid or Sal. com.
becomes turbid, & the Silver precipitates.
Vinegar acts on it in its calcined state. It
seems by attracting Phlogiston. It unites with
Sulphur & all the metals but Nickel.
It strongly attracts Copper, Lead & Gold. It
is found chiefly in S. America, Peru, or
Mineralized with Sulphur, Sulphur &
Arsenic, Sulphur & Antimony, Sulphur & Copper
A.C. after the Arsenic of Antimony, Iron,
Lead & Acid of Common Salt. —
Sulphur greatly accelerates the fusion of Silver.

Gold is a pure, soft metal of a fine
color, so little elastic that it may be
extended probably beyond any other
of equal quantity of any other. The
specific gravity is 19.35. The
only the Platina & mercury
of which has a

[illegible]

Regulus powder is destroyed by water
mixed with water, vitriolic acid
[illegible] acid or fixed alkali.
[illegible] occasioned by exhaling Sulphur
in the collection of the acid from the sublimate
[illegible] of Regulus. Upon mixing them
together without heat, there will
be no [illegible], but if you
[illegible] by adding to Mercurius vitae
[illegible] a beautiful purple
precipitate by fixed alkali. The Regulus
and fixed alkali in Sulphur [illegible]
[illegible] mixed with [illegible] [illegible]
[illegible] Gold. Water [illegible]
dissolves Gold, if [illegible] bitter [illegible]
[illegible] with all the details. Mercurius
vitae with [illegible] Mercury strongly attracts
Gold & dissolves all other metals [illegible]
[illegible] all [illegible]
make it not [illegible] [illegible]
[illegible] the colour of [illegible]
[illegible]

Air is divided into 1st Fixed, 2 Inflamma-
ble, 3 Dephlogisticated, 4 Common, 5
Phlogisticated, 6 Vitl. acid, 7 Nitr. acid, 8
Muriatic acid, 9 Alkaline, 10 Hepatic.
Pure air, Dephlogisticated air, & Vital air
are synonymous & exactly the same.
Fixed air is found to be acid from the acidulate
taste of Pyrmont water, which arises
from its impregnation with fixed air,
& from its turning the tincture of turnsol red.
Black says it is a component [illegible]
Vital or Dephlogisticated air [illegible]
It is emitted from all bodies by heat
[illegible] water when freezing. Pure
[illegible]
[illegible]
[illegible]

The Water of Spa is a Fossilable Alkali, [illegible]
principally with Calcareous & Gypseous Earth,
which latter are called Terra Foliata.
Chalybeata, the Learned calculate it
from an over abundant proportion of Iron
Hence it is well suited to Bilious Cases
Obstructions, Jaundice, Scurvy, &c.
Water, Air, or Fire, Dissolve it in
water. It is soluble in water &c.
Spirituous Fermentation, water, as well
as Fire artificially impregnated with
Fixed Air promotes Fermentation
Fare are [illegible] Bread [illegible]
of Spa &c.

[illegible]

[illegible] are [illegible] [illegible] [illegible]

larger [illegible] near [illegible] [illegible]

[illegible] [illegible] [illegible] [illegible]

[illegible] [illegible] [illegible] [illegible]

[illegible] [illegible] [illegible] [illegible]

[illegible] [illegible] [illegible] [illegible]

[illegible] [illegible] [illegible] [illegible]

altho' [illegible] [illegible] [illegible] in

the great body of [illegible] [illegible]

[illegible] [illegible] [illegible] [illegible]

[illegible] [illegible] on them [illegible]

[illegible] [illegible] the artificial

[illegible] of [illegible] [illegible] [illegible]

precipitated and [illegible] [illegible] of the

[illegible] [illegible] from [illegible] [illegible]

[illegible] [illegible] [illegible] [illegible]

[illegible] with a certain proportion of

the aqueous. Of the [illegible] artificial

[illegible] [illegible] [illegible] [illegible]

[illegible] [illegible] is in a more concentrated [illegible]

[illegible] [illegible] [illegible] [illegible]

[illegible] [illegible] [illegible] [illegible]

[illegible] [illegible] very heterogeneous & contains

[illegible] impurities. [illegible]

Contagion which are the causes of the
many Diseases, & Decays of Cattel
[illegible] & other ends mysterious
the Common Div. Relation at [illegible]
[illegible] in Material matters, Various
[illegible] considered in great quantities.
The division of air is Commonly &
particular. The said Relation
[illegible] are nothing but the particles
of Rope bodies floating in the air.
[illegible]

[illegible]

[illegible] the following [illegible]

[illegible]

[illegible] Sir Ed. Forbes [illegible]

[illegible]

[illegible] a small quantity of lime.
Calcareous earths are known by
their [illegible] appearance of the
[illegible] taste, hardness
[illegible] of [illegible]
[illegible] of a yellow colour, [illegible]
[illegible] are a [illegible] form
[illegible] of [illegible]
[illegible]
in burning [illegible] with [illegible]
suffocating, & [illegible] only
[illegible] in water, they
are known by their taste, smell &
inflammability. There is no other
[illegible] of [illegible]
only [illegible], which is only
a principle of inflammability
[illegible]
of composition, [illegible]
[illegible]
[illegible]
[illegible] ~~[illegible]~~
[illegible]

Iron & Copper are similarly affected
by the Fixed Alkali. They are
[illegible] by means of the [illegible]
[illegible] Iron by [illegible]
[illegible] affected, [illegible]
the Ammonia, Alkali, & by [illegible]
[illegible] & [illegible]
[illegible] by [illegible]
operations, the [illegible]
[illegible] in Alkali, and, will [illegible]
[illegible] in mostly [illegible]
[illegible] the [illegible], being conveyed in the water
Copper is dissolved by water [illegible]
[illegible] & blue colour. [illegible]
[illegible] Fixed Alkali with [illegible]
[illegible] a blue mixture [illegible]
copper, [illegible] & the [illegible]
[illegible] Compound. [illegible]
[illegible] [illegible]
[illegible]

[illegible] in [illegible]. [illegible]
[illegible] or [illegible]
[illegible] a solution of [illegible]
[illegible] or [illegible]. [illegible] of [illegible]
are found in water, [illegible]
[illegible] by evaporation, [illegible] al-
[illegible] making it [illegible] ie [illegible] ifi-
[illegible] the earth. The latter is known
[illegible] a solution of Borax, [illegible]
[illegible] water of [illegible] milk [illegible]
[illegible] precipitating the clay. [illegible] [illegible]
[illegible] Magnesia present in water
[illegible] separated from [illegible]
[illegible] calcareous earth. [illegible]
[illegible]
[illegible]
[illegible] Calcareous [illegible]
[illegible] Chalk [illegible]
[illegible] is deposited [illegible]
[illegible]

They are nourished by water. Thus in
[illegible] equal. Portable water is
[illegible] and a very dangerous
poison when [illegible] of the acid [illegible] are
inflammable. The same effect [illegible]
in the [illegible] Barbiere also [illegible]
no very great circulation. [illegible]
[illegible] above [illegible]
[illegible] blue [illegible]
[illegible] it an electric [illegible]
[illegible] contain an [illegible].
[illegible] moisture [illegible]
[illegible]. The best [illegible]
[illegible] the [illegible]
[illegible] the [illegible]
[illegible] the [illegible]
[illegible] the [illegible]
[illegible] the [illegible]
[illegible] the [illegible]

[illegible] the [illegible] follows [illegible]

[illegible] heat, a large quantity of [illegible]

[illegible] great [illegible]

[illegible] the [illegible]

[illegible] being [illegible]

[illegible] in the [illegible]

[illegible] a [illegible] discharge of [illegible]

[illegible] longer [illegible]

[illegible]

[illegible] of [illegible]

[illegible]

[illegible] the [illegible]

[illegible]

[illegible] to be [illegible]

[illegible] the greater [illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible] is first

soaked in water for 3 Days, then laid on

boards in a warm place till it begins to

coagulate, that is sweet; then is now dried [illegible]

in a press, that is called Curd, which being

[illegible] dissolved in Water is called Curd

[illegible] are added to [illegible]

[illegible]

[illegible]

[illegible]

Articles affording more of the
Nature of Gaining, to the Bottom. In Italics
is what are Shown, upon exchanging
the in Barrels & Lodging Ports Season.
The Consumption of the wear Consists of
in the Secrets, Brandy will preserve the
the strongest & Heavier Cargo for
Madeira, Fayal, Genevieve, Lisbon, &
the Red Port, Claret, Burgundy, which
is divided into Redundant & also with
other kinds. Of the sweet, Mateat,
Malaga, Sack. Of the sour wine
Sherry, Rhenish, Hock &c. Their dif-
ference only depend on the different
Terms & Cultures, Acid, Bitter, Secondary
Fat, Oil, Ether, Inflammable, adhesive
matter. The first contain more Water,
Spirit, & less water, the acid & more Oil &
Oil more & Wines much more Fixed, & less
Tartar acid. Oil, Red, Sour, Sweet, Sharp
acid, water & Spirit, but little matter.
Madeira Wine. Lighter of Spirit & less
some, some more & less accordingly
& the accompanied in the Fermentation
Tartar & Water in wear, a very
Strong.

[illegible] [illegible] [illegible] common river, is that which is loaded with the most filth, hence the superiority of the English beer because it is made of the Thames water. [illegible] & [illegible] water are the best. It has been remarked that the [illegible] beer is the best, because [illegible] the [illegible] the water of the River is more impreg-nated with putrid animal & vegetable matter which fermenting, assists & completes the fermentation of the beer & the [illegible] of the matter which rise to the bottom & carry with them [illegible] of the beer, leaving it perfectly pure. [illegible] [illegible] [illegible] [illegible] from the Sugar Cane [illegible] [illegible] [illegible]. The [illegible] resembles sugar, but unlike [illegible] insoluble in warm water but [illegible] [illegible], it is found in the [illegible] [illegible] plants, & in the roots of [illegible]. [illegible] [illegible] [illegible] the [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible].

[illegible] from [illegible] the [illegible] parts
the principles of inflammability, existing
in the liquid. Vegetables contain them
alone under the Vinous, Acetous & Putre-
factive fermentation, but they are all en-
creased by ferments. Spirits are
made from various grains. Very cold or
very damp weather make grain [illegible]
[illegible] to drive.

Spirits are procured by distilling vege-
tables in the Vinous fermentation. They
may be procured from any substance
capable of undergoing the vinous fer-
mentation. All the berries, Apples,
Pears, Peaches & other fruit are
fit by distillation. The Grain that grows
in old ground, & in dry seasons produce
most Spirits. Some [illegible] fermentation
[illegible] Spirits made here is made from
Molasses, or Cyder. The proportion for
making Spirits or Rum, is 100 Gallons
of Molasses, 500 Gallons of water & 50
Gallons of [illegible]; the [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible]

[illegible]

[illegible] of Cookery is
[illegible] the bath, [illegible]
butter would be much more pleasant
to most palates, but the reverse [illegible]
[illegible] It is [illegible] to
[illegible] and the [illegible]
[illegible] The following [illegible]
[illegible] Butter [illegible]
[illegible] butter [illegible]
[illegible] the fermentation is more
complete as it is made with the [illegible]
water. Brandy is added to keep it from
their growing sour, [illegible] the [illegible]
[illegible] consists much water [illegible] it [illegible]
[illegible] must [illegible] [illegible]
[illegible] by keeping [illegible] becomes more
[illegible], and [illegible] [illegible]
By adding [illegible] to [illegible]
[illegible], & keeping it several years,
it comes equal to [illegible] [illegible]

Lect. 35. The Human Eye is divided into Aqueous Humor, the Crystalline and analogous Water, Salt, Oil & Earth.

[illegible] Humors, the Crystalline [illegible] Humors, the Oil [illegible] the Humors have the same properties that [illegible] [illegible] properties.

[illegible] Humor, Remove most, [illegible] first [illegible] Vapour, the three senses [illegible] Crystal or Crystalline [illegible] [illegible] it is more [illegible] [illegible] [illegible] [illegible] from the [illegible] [illegible] [illegible] of the effects. The crystalline is made of [illegible] or more [illegible] [illegible] Oil [illegible] [illegible] [illegible] [illegible]

[illegible]

[illegible]

[illegible] more of the [illegible]

being exposed [illegible] that [illegible] indivisible [illegible]

[illegible] of the [illegible]

[illegible] remain [illegible]

[illegible]

[illegible] inflammable

[illegible] the coagulable [illegible]

[illegible] of the inferior surface of the

inflammation, as owing to the greater con-

[illegible] of the globules, and greater [illegible]

[illegible] the absence of the air. [illegible]

[illegible] prevent the separation of the [illegible]

[illegible] the globules, [illegible]

[illegible] increases the [illegible]

[illegible] separating the [illegible]

[illegible] blood [illegible]

[illegible]

[illegible]

[illegible]

[illegible] pro[illegible]

[illegible] animal [illegible]

[illegible] inflammation,

[illegible]

[illegible]

be [illegible] [illegible] [illegible] serve for the nour-
ishment of an animal body, in which
[illegible] [illegible] from other [illegible] coagulating
[illegible] [illegible] [illegible] [illegible]; when
[illegible] [illegible] [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible] [illegible]
[illegible] in the [illegible] & [illegible]
[illegible] [illegible], [illegible] [illegible] [illegible]
[illegible]; that if received in a [illegible]
[illegible] seem more coagulable [illegible],
[illegible] if received in blood, [illegible]
[illegible] & if received in [illegible] [illegible]
[illegible] [illegible] in other kinds. But the
[illegible] quantity of [illegible] always
[illegible] in Phlegmatics; [illegible]
[illegible] [illegible] of the [illegible]
[illegible] [illegible] [illegible], & [illegible]
[illegible] in 3 ways viz.

[illegible] [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible]
[illegible] of all the animals, [illegible]
[illegible] [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible]

Phlogiston of the opinion which I have
left the conjectural part concerning Fixed
Air are highly applicable to this
the overheating of Blood, which seems to
take place in the breeding of Horses,
& appearing that it is probable.
These applications are obvious. Hitherto
it has been held that Phlogiston, Inflamma-
ble Air, Phlogisticated Air, Fixed Air
are, with a portion of common Air, contained
in the Blood, & that the inflammable
part of the Blood is perhaps the
Phlogiston, Phlogisticated Air, Fixed Air
being air which is secreted into the
Blood in several departments
in the Lungs.

The diseases of serous viscera in fever are
and without the least foundation in
fact. There is the greatest quantity of red globules
& coagulable lymph in venous, nervous
animals, or Vitreous humors, & inflammatory
diseases. Lesions of the abdominal viscera
are generally produced by a too free use of
fermented liquors, whose action, like that
of poison is narcotic & confined to the
nervous system. The blood is never diseased
from having its density or specific gravity increased.
Diet can alter the blood, for the aliment
is slightly changed ~~previous~~ in the stomach,
in various differences the nutritive
properties are diminished, absorption is increased. Fluidity
and density of blood from water drinks, for
when they are increased, the secretions are
increased: the blood of a Bilious Fever
is not watery. It may take place more short
time in the Febrile, with the well
be only in fill some other exertion is increased
that may take place in the stomach. but from it
overcome to a degree of the blood. The cood
viscera defended by the serum. If a person
[illegible] by the Office the calcelurnment
would conclude it that in Hunger when [illegible]
from the mouth or fresh air, [illegible]
[illegible] the [illegible] of the
[illegible] [illegible] [illegible]
[illegible] [illegible] [illegible]

[illegible] in leaving body in the retention of impurities
to be discharged in the blood. The blood in some times are
commonly at in the receiving, which is opinion to prevent
nominance of Gramineal salts but have the fullest
not at all increased but sometimes rather slowly in
health. Vegetable fixed salts formally in the blood, for the
antiseptic of Fat acids & bitters, mutually correct each other.
The absorbent would not admit it, 3 the powers in the stomach
that would destroy it, 4 Provide it dissolved homogeneously
the blood. The Alkali, wild or mineral but the [illegible] being
bitter, fermenting. Vegetable acids or tartar or sugar
burnt the syrup of [illegible] green [illegible] by [illegible] in [illegible] formed
[illegible] questionable. No fixed alkali is ever present formed
in the blood; but it is produced by fire: it [illegible] in
[illegible] in the stomach, & [illegible] fixed alkali
in entering the blood. Common salt is changed into Rochelle
Salt in the blood, & Glauber changed it into Nitre, [illegible]
[illegible] produces fixed alkali. Green Tea taken in the morning
[illegible] the same effects as fixed alkali in the stone [illegible]
[illegible] in the stone of gravel in great quantities [illegible]
[illegible] in the natural state. Alkalis induce acrimony [illegible] blood,
[illegible] destroying the acid in stomach; it is the attraction of acid
[illegible] digested blood in the ~~stomach~~ secretory. The acid in the
stomach is necessary to form the animal juices. Vegetable alkali
[illegible] fixed salts were exist formally in the blood [illegible] Tol.
[illegible] mineral salts which is always in the blood [illegible] Tol.
Alkali is never wolved from the body during life. Tol. [illegible]
[illegible] yet be bringing on Ptonia. Hence [illegible]
[illegible] France by Tol. alkali. The Tobacco named [illegible] Linnaus
[illegible] of Bay yield Tol. alkali. Cocions produce a
[illegible] of the blood by acting as a [illegible] on the nerves
[illegible] the Tol. alkali attract in [illegible] [illegible]
[illegible] trade. The scurvy is induced by [illegible]
[illegible] 3 [illegible] 4 [illegible] blood
[illegible] taken into the body, to [illegible] [illegible]
[illegible] It never occurs to be [illegible]
[illegible] [illegible] [illegible]
[illegible] [illegible] [illegible]
[illegible] [illegible] [illegible]
[illegible] [illegible] [illegible]

[illegible] it proper to divide the recommendations:
[illegible] is laid in energy, inequality may be taken
[illegible] Fever always attends the cutting yield strong
[illegible] under the [illegible] not [illegible] that but it formed without
[illegible] formation. Dr. Rush is like a [illegible] with
[illegible] the formation of the [illegible] not [illegible]
[illegible] the formation of [illegible]

[illegible] verified of the cure of fever
[illegible] 1st fever are produced, fevers by [illegible]
[illegible] mind 2 fever are cured without evacuations;
[illegible] [illegible] Dr. Rush is [illegible]
[illegible] in the blood 4th [illegible] the Mad. Rush [illegible]
[illegible] [illegible], [illegible] the Mamma
[illegible] [illegible] Dr. Rush [illegible]
[illegible] [illegible] of the [illegible]

[illegible] in a [illegible] attended with [illegible]
[illegible] but [illegible] upon [illegible]
[illegible] the [illegible] effects, & one part [illegible]
[illegible] is [illegible] to [illegible] [illegible]
[illegible] Sweet water, & in [illegible]
[illegible] the [illegible] in a very valuable
[illegible] thrown out, & [illegible] a [illegible]
[illegible] from the [illegible] acid generate. [illegible]
[illegible] belonging to the [illegible]
[illegible] engaged in the [illegible] perpetual
[illegible] with the attenuate [illegible]. The [illegible]
[illegible] of the salens particles [illegible]
[illegible] and common salt, [illegible] with
[illegible] the [illegible] Allegation. The [illegible]
[illegible] in their passage [illegible] the [illegible]
[illegible] the canal. They contain [illegible]
[illegible] from the yellow [illegible]
[illegible], vit. acid. & Oil. The [illegible]
[illegible], Water, common salt [illegible]
[illegible] & [illegible] differed to [illegible]
[illegible] opinions about the [illegible]. When [illegible]
[illegible] found by experiment that [illegible]
[illegible] of [illegible] they [illegible] adequate [illegible]
[illegible] recommend [illegible] the [illegible]
[illegible] perhaps by the [illegible]
[illegible] in the [illegible]
[illegible] recommended by [illegible]

[illegible] & Mechanical power but [illegible]
undergoes fermentation before it [illegible].
The [illegible] aforesaid in question, [illegible]
fermentation in the Stomach; it is by no
means saponaceous as was supposed. The
aliment is converted entirely, by fer-
mentation. The V. & A. ferment [illegible]
[illegible] take place in the human stomach.
The acid is destroyed by the bile with wh[illegible]
it forms a tertium quid neither [illegible]
[illegible] equal parts of Vinegar & [illegible]
[illegible] form a tertium quid incapable
[illegible] coagulating milk. The Bile is neither
[illegible] but secreted in more [illegible]
& more abundant in quantity, & [illegible]
acrimony in Summer than in Winter.
[illegible] The gastric juice is possessed of a very great
[illegible] power as proved by its dissolving
bone, iron, & being equal to the [illegible].
[illegible] experiments made by a [illegible]
[illegible] was extracted by a [illegible]
[illegible] after being [illegible]. [illegible]
[illegible]
[illegible]
[illegible]

[illegible] milk, [illegible]
[illegible] [illegible] [illegible]
[illegible] [illegible] mucilage, [illegible]
the [illegible], [illegible] are [illegible]
[illegible] by the [illegible]
[illegible] [illegible] the butter, the [illegible]
[illegible] & the [illegible] [illegible]
[illegible], the volatile parts are [illegible]
[illegible] [illegible] again [illegible]
[illegible] of sugar is obtained. [illegible]
[illegible] [illegible] but [illegible]
[illegible]. By the escape [illegible]
[illegible] more coagulable, [illegible]
[illegible] [illegible] it, & makes [illegible]
the presence of fixed air seems [illegible]
[illegible] fermentation. All acids, [illegible]
[illegible] of all Animals [illegible]
[illegible] Carnivorous coagulate [illegible]
[illegible] stomachs is owing [illegible]
[illegible] [illegible] [illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]

[illegible]

[illegible] the [illegible] of the [illegible]
[illegible] coagulate [illegible] Milk, [illegible]
[illegible] water [illegible] 2. The [illegible]
[illegible] at least on the surface of the
[illegible] strongest the Milk. Consequently
[illegible] most Milk in May or June.
[illegible] Butter is more, or [illegible]
[illegible] of his parts [illegible] the
[illegible] generally [illegible] and
[illegible] generally [illegible] forward during [illegible]
[illegible] it is more wholesome than Cream, as it
[illegible] contains so much Mucilage, on which
account it is more soluble. [illegible] with
it whey, & a little Mucilage; it is more nutri-
tious than Cream. 4th of Milk, [illegible] yield, 4
in Cheese. The goodness of the Cheese, as
for the texture, depends on the Coagulum we employ;
upon the Milk we use, whether it be entire
or not, upon the manner of preparing it. The
[illegible] of Warmestark is owing to [illegible]
[illegible] of the Gloucester to [illegible]
[illegible] of skim'd Milk with cream [illegible]
[illegible] it is of a yellow colour.

Asses Milk is of delightful palatability, but it is not the moisture of cheese makers it rather for purity, since Maggots are produced. Rennet is the most common Coagulum used here. The chief manufacturers are made of Skin Milk, since Butter is cheaper. The small quantity of Rennet used in making cheese, lasters its fermentation. Old Cheese is used as a ferment to hasten fermentation. Serum or Whey contains the Sugar or Milk.

100 lb. of these Milks yields lbs of Sugar

Women's	14.
Mares	70.
Cows	54.
Goats	49.
Sheeps	35.

Women's & Asses are preferred, tho in our opt. the Sugar is prejudicial. If used in Consumptions, only the least would bear it, you may dilute to make 3 lb quantity of Water. 1 lb of Ass's Milk may be made equal to 1 lb of Goat's Milk.

Both the Estimated Consumers
Remarkable Milk. Cons. Milk is
Regulated by the Bile. Both of
these Cons. Milk. The Stools contain
more Oil, Lights more Curd, Milk is
Leaste coagulable. The General Acts
Regulate Milk, Regulation
and of the Secreta. Sickness and pre-
ing one great change in the milk, time
Colors milk Their powder. Whether, or
Neither discredit with emphasis, Stools
Bottle-fed a General Acute, and have
an Inflation without Diff mouth, it are.
Therefore and alter the Milk appear
Diff not changing the colour, liver.
Tonic of the Mind & Spirituous Spirit
produce a great alteration in the Milk.
Milk of Nurse in a pattern of
occasions Colic & Diarrhoea. Milk is
made of Starches, Lance Bar ate of
of Spirit milk dondensate
the maple. Milk more secret
it some of milk Ther accounts
as it been Interpide
the Cheese from as Lice

[illegible] appetite, Painful or sore
[illegible] the Lips, where the Flame is peculiar
[illegible] sensations, & it every year. Under
[illegible] the injection of the milk is felt
[illegible] to the stomach, when chalder ale
[illegible], hence it colour cannot bear milk
[illegible] is the only remedy I know in
[illegible] Dropsical or Chronic Diseases &c
[illegible] treatment state of acute treatise
Bonny Clabber is the spontaneous se
paration of Milk, its more valuable
than fresh. Persons above the age of 45 can
[illegible] use Milk with great caution. I
have seen Dropsies, Hydrocele, & Gravel
[illegible] by the use of Milk in Cases
like. Its properties heavy, all unpleasant
[illegible], & to some poison. The use
[illegible] of Milk is increased by its curdling
in the stomach. If a person feels nau
[illegible] from using Milk, has good
[illegible] for breakfast, & sleeps well
[illegible] pronounce him to be healthy &
have good temperament. [illegible]

[illegible] Bodies are [illegible]
[illegible] matter, upon which they
[illegible] depends. Elastic bodies, [illegible]
[illegible] & resistive, plant are [illegible]
destroyed with another, in the same
[illegible] as the vehicles which carry
[illegible] celerities do. The molecules [illegible]
[illegible] the other, is regularly [illegible]
[illegible] having its density, & [illegible]
increased & diminished by distance. This
[illegible] of being effected by Cohesion,
[illegible] internal impression of [illegible]
[illegible] of the mind; for [illegible]
[illegible] person will [illegible] left.
[illegible] sleep, it be no means connected
with an exhaustion, repletion, & the
[illegible] of the human [illegible]

[illegible] happens if stimulus not sufficient
to keep it in action. The state
of mind in which objects cease to
attract attention & sensations are
effected by habit, is analogous to
that in which the mind's energy
is fixed on one subject, hence [illegible]
[illegible] second, as often happens
in dozing on the Floor, & [illegible]
[illegible] hidden transactions of the mind
from one subject to another, [illegible]
[illegible] prevent sleep; for [illegible] neither
in a dull stimulus. There are other causes
of sleep, as compressions on the brain [illegible]
[illegible] inducing stupor, produce sleep. [illegible]
absence of impressions is the [illegible] cause
of sleep. These are the remote causes of sleep.
The relaxation or flow of the brain is the
immediate cause of sleep. The brain is
either in a tonic or atonic state, or in a
state of Excitement or Collapse. The
brain is in a tonic state by the con-
[illegible] action of stimuli, hence wakeing
is a state in which [illegible] reciprocal
[illegible] is [illegible]
[illegible] produce convulsions or [illegible] not under

sleep or transition of the nervous
relaxation of the system, for in cases
an increased tone after. The time of
sleeping is induced by habit. Night
is the most favourable time, because
here is the greatest abstraction of the
mental as legitt. & voluntary. Light, in
consequence shrinkers. Darkening the
room will induce sleep. The lowest
degree of excitement is in Mania, hence
their great strength, & capability of en-
during cold. Consciousness in degree
will determine the excitement of the
Nervous System. Delirium & Mania are
not divided into two kinds. Delirium
from exhaustion; one from Collapse, & the
other from excitement. Mania from too
high a tone, & from too great debility.
Exhaustion. Hence the modes of tre-
atment must be opposite. Delirium or
Mania, from increased tone is cured by
Bleeding, Evacuants &c. & that from
debility by Tonics, & Stimulants. Prin-
ciples of Gordon cured Mania by blee-
ding with them, hence the absurdity of
confining them in cells; they require

pity, love, hope, Labour, &c. In species of
Insanity in which the treatment differs,
it is that induced by Love, Pity, or unex-
pected Good fortune. Great geniuses
seldom remove from Madness, so near
are they akin. Sleep is only perfect
without Dreams. In Persons who dream
there is a partial excitement, or fixed state
of the brain. This accounts for the Delirium
in Scarlet fevers, & also why hard labourers
lying on the back, don't get their prevailing
dreams. On the Back the most Wanderer
are related. There are no dreams without
stimulus. Total abstraction of stimulus
is necessary to prevent Dreaming. There is
only a partial collapse in dreaming.
Whispering in the Ear awakes a person
much more effectually than loud sounds,
it infallibly brings on dreaming or
waking. Dr Blattie tells a story
the Mind is as certainly active in
dreams as in the waking state. By the
height of absurdity to attribute Dreams
to the motion of an intelligent being.
They depend entirely on the accidental
natural association of Ideas uncontrouled
by judgement. Imagination & Judgement
are two different powers of the brain, while
imagination roves at large the other, the judge
sits in his chair & refines without acting.

The more incoherent & extravagant are the
more complete is the collapse, hence com-
mon dreams occur most frequently in
morning when the stomach affected by
bile & the urine on the rising
in bladder, & lights. The colour are
generally with what comes to pass.
is purely accidental & natural &
said as usual. Recollect will alternate
upon the other in a state of waking,
half asleep. The imagination is continually
engaged, & in sleep it does not.
Dying Kills by bringing man
entire collapse of the brain death
is an entire collapse & loss of activity
in the brain as in fatal hysteria.
Dreams & thinking are exactly alike,
are natural & mechanic operations of
the mind & body not depending on
volition & without the interposition of
the will.

[illegible]

[illegible] secrete from the blood [illegible]
[illegible] part of the Brain; & then con-
[illegible] every part of the body, [illegible]
[illegible], the excretories of the brain, nitri-
[illegible] the principle, & seat of life, [illegible]
[illegible] & formed & lewis & the last [illegible]
[illegible] seems to be a gland & to secrete a
[illegible] from the large quantity of blood
[illegible] here. Every part of our system
[illegible] organically filtered, & not formed
from the Vessels, which are [illegible]
[illegible] here. In Plants, the nervous [illegible]
[illegible] filters blood, & we need [illegible]
[illegible] in animals. The juice conveyed
[illegible] nerves is so pure & [illegible]
[illegible] the brain & perhaps [illegible]
[illegible] of the lungs & nerves [illegible]
[illegible] consists in air [illegible]
[illegible] not [illegible] was [illegible]
[illegible]

The brain [illegible] a [illegible] from the [illegible] lymph, which is propelled through the nerves by an energy from the brain. The [illegible] in this propulsion. The [illegible] being in motion propells the [illegible] fluid. The [illegible] matter must be a secreted fluid, for [illegible] blood vessels can't [illegible] for they don't terminate in [illegible] but in [illegible] capillary [illegible].

A nerve is always accompanied with an artery which mutually [illegible] these [illegible] sensibility, [illegible] must be blood vessels. The [illegible] of the blood vessels increases the [illegible] sensibility & irritability of the nerves the [illegible] the blood are, [illegible] over the [illegible] communication [illegible] in the nervous [illegible] unnecessary [illegible] being [illegible]

[illegible] and [illegible] [illegible]
[illegible] matter [illegible] [illegible]
[illegible] but on a matter called [illegible]
[illegible] Medicines are sufficient to cure all the
diseases [illegible] Simplicity should
be particularly attended to in our pursuit of
[illegible] all powerful medicines and [illegible]
[illegible] simple state; & when mixed are apt to
[illegible] each other; they sometimes counteract
each other & form a tertium quid that could
not either dangerous or totally inert. In con-
[illegible] medicines, the strongest only will
[illegible] two impressions can't be conveyed at the
same time; that if two bodies impinge on a
[illegible] it in the direction, neither
[illegible] a diagonal of both, & [illegible]
[illegible] strike a person's mind all the [illegible]
neither of them will be remembered, [illegible]
[illegible] totally different from both. Me-
[illegible] that Concentrated Bark, & other [illegible]
[illegible] particles, wasted by them [illegible]
[illegible] & rendered inactive by acrimonious
[illegible] & their deleterious effects [illegible]
[illegible] [illegible]
[illegible] become [illegible]
[illegible] [illegible]
[illegible] [illegible]
[illegible] [illegible]
[illegible] [illegible]

[illegible] Respiration is the means by which the body is supplied with heat, which is occasioned by the [illegible] evolved from [illegible] in the lungs, [illegible] Respiration. [illegible] appear to be the [illegible] of the system. The generation of heat in the human body is analogous to the production of heat in a culinary fire; [illegible] the principle of inflammable with [illegible]. The separation of the principle of inflammable is occasioned by the [illegible] of vital air, therefore the greater the quantity of vital air, the greater the heat: hence the great heat in fevers, [illegible] exercise. The degrees of excitement are various, [illegible] Phrenzy there is the highest degree of excitement; 2nd the next degree of excitement is in ordinary health; 3rd the next degree is in sleep; 4th the next degree is in Syncope; 5th the lowest degree is in Death. [illegible] [illegible], i.e. by the [illegible] [illegible] the bowels of the [illegible].

Fourcroys Chemistry

[illegible] Affinity of [illegible] [illegible] Affinity [illegible] constituent [illegible] established [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] means [illegible] [illegible] Nature. Phenomena [illegible] [illegible] more than four [illegible] [illegible] [illegible]. It is necessary that [illegible] [illegible] [illegible] the Component [illegible] [illegible] are different [illegible] [illegible] changes in [illegible] [illegible] analysis of Chemical [illegible] [illegible] Analysis & Synthesis [illegible] [illegible] [illegible] [illegible] [illegible] Elements [illegible]

[illegible] [illegible] Elements [illegible] [illegible]

[illegible] [illegible]

[illegible] Light is [illegible] further in [illegible]

[illegible] evidence [illegible] of Reflection — [illegible] Light [illegible] can it suffer [illegible] 1844 [illegible] organic bodies. M. Pelouze says that a combination of Oxy-hydrogen with [illegible]

[illegible] phlogiston from [illegible]

[illegible] the same most [illegible]
strongest affinity with oxygen of any
other substance. If Sulphuret of
calx or metal be made [illegible]
[illegible] heated. Imagine a tri-
angular or oval [illegible] of calx to be
produced the air that remains round
about the remains of the combustible
body. I am confirmed that in the many
combustible bodies. If Sulphur and
[illegible] heat are two distinct substan-
ces which reside in the same [illegible]
in a state incompatible of their
[illegible] the one entirely [illegible] affected
[illegible] particles with the
opposition to the third which resists
their [illegible] the calx. All inflammable
bodies contain a large quantity of phlo-
[illegible] heat, [illegible]
[illegible] phlogiston [illegible]
[illegible] from [illegible]
[illegible] of the [illegible]
[illegible] the phlogiston [illegible]
[illegible] thermometer [illegible]

of these remaining [illegible] mephitic [illegible] one fourth
of pure air. Composition in the Com-
bination is pure air with the combusti-
ble principle. This may be reduced to
[illegible] of its parts. [illegible] Air or remaining
after combustion [illegible]
[illegible] being what remains there
[illegible] is called mephitic [illegible]

Q. What characterises [illegible]
Combustion of such portion [illegible]
[illegible] for respiration. [illegible]
[illegible] or one fourth of the Atmosphere
[illegible] the only useful part [illegible]
[illegible] by gaseous [illegible]
[illegible]. Fixed Air or [illegible]
[illegible] Animals extinguishes flames
[illegible] the calcination of metals
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]

Water is a compound of Oxygen
& hydrogen & water being the product
of their combustion or combination
with each other therefore
water.

If there only exists
Oxygen & hydrogen
Combustible gas & Atmospheric air
Respectively produced water
with Different substances

The Separation of the ingredients
of Atmospheric air. Precipitates
water is absorbed by water at several
degrees of pressure & temperature
The other kinds of air are Fixed
air, Nitrous air, Inflammable air, Mephitic
air, Phlogisticated air, Vitriolic air
Plastic air. Internal effects
of some of these operations
on the water that passes through
the lungs with electrical effects
on the effects of fire & greater than that
water, & prepared the mercurial
[illegible] for bottling & fixed [illegible]
[illegible] the distillations of fish

[illegible] & other Heterogeneous [illegible] Earths are divided into Vitrescent Earths & Argillaceous. The first is not altered by fire [illegible] the second [illegible] [illegible] Hardness, & much [illegible] unite [illegible] with [illegible] or with [illegible] reason of Vitrification. The Argillaceous unites with the [illegible] [illegible] them forms [illegible] Earths [illegible] simple Elements [illegible] which are insipid. dry. [illegible] insoluble [illegible] are divided into [illegible] [illegible] Stones, [illegible] Stones, [illegible] Earths [illegible] & Compound Earths, [illegible]

[illegible] Chrystals. Lapis Lazuli [illegible] these Earths [illegible] tone, [illegible] [illegible] them [illegible] by taste [illegible] solubility [illegible] tendency to combination

[illegible] incombustible. The 2d [illegible] acidum

formation of Secondary compound or

Neutral Salts. The genera of the [illegible]

are these viz 1. Saline Earthy [illegible]

1. [illegible] 2. [illegible] 3. [illegible] the [illegible]

[illegible] Terra Ponderosa 2. Magnesia

3. [illegible] Alkalin 4. [illegible]

The Secondary 1. Vegetable 2. Mineral

[illegible] Alkali [illegible]

[illegible] Chalky [illegible]

[illegible] 2. Sparry [illegible]

[illegible] Regia 6. Vitriolic [illegible]

of [illegible]. 3rd Class Combustible

[illegible] viz 1. Sulphur in

flammable [illegible]

Full'd. Sin.

[illegible]

Iron [illegible]
[illegible] or Iron [illegible]
[illegible] substance [illegible]
[illegible] iron [illegible] metal [illegible]
Stone is a variety of [illegible]
[illegible] Iron [illegible]
water [illegible]
Iron [illegible] combine with [illegible]
[illegible] water [illegible]

[illegible] united with the [illegible]
[illegible] called Colcothar of Vitriol [illegible]
[illegible] of Coal [illegible]
Iron combined with Arsenic called [illegible]
[illegible] Iron is not [illegible] soluble in [illegible]
[illegible] Iron crystallized [illegible]
[illegible] that [illegible]
[illegible] attracted [illegible]
[illegible] the rust of that [illegible]
[illegible] with water its combination [illegible] Iron [illegible]
[illegible] action upon Iron [illegible]

[illegible] water nor Iron [illegible]
[illegible] Iron seizes upon
[illegible] composition [illegible]
[illegible] water [illegible]
[illegible] combination [illegible]
[illegible]
[illegible]
[illegible] mixture [illegible]
[illegible] are given [illegible]
[illegible]
[illegible]

[illegible] [illegible] [illegible] Prussian blue from a solution
[illegible] blue & Alum [illegible] [illegible]
& [illegible] [illegible] Nitre. The solution [illegible]
by [illegible] [illegible] is called [illegible] [illegible].
[illegible] [illegible] dissolves Iron with rapidity & [illegible]
[illegible] [illegible] inflammable air. [illegible]
[illegible] [illegible] [illegible] [illegible]
[illegible] [illegible] Ammon. [illegible] [illegible] Sulphur. Mercury
[illegible] [illegible] a union with Iron. Zinc [illegible]
[illegible] [illegible] [illegible] sulphur [illegible] [illegible]
[illegible] [illegible] [illegible]. that iron [illegible] [illegible]
[illegible] & cast Iron. Crude Iron [illegible] in [illegible]
[illegible] [illegible] Iron [illegible] [illegible]
Malleable the expulsion of [illegible] aerial acid, & [illegible]
tion of [illegible] Phlogiston to the imperfect metal [illegible]
crude Iron [illegible] malleable Iron. Iron [illegible] [illegible]
[illegible] by fixing.

Copper.

Copper is an imperfect metal. From the [illegible]
[illegible] [illegible] [illegible] & [illegible], it ob-
tained by evaporation & crystallization a blue salt called
blue [illegible]. Water does not attack Copper unless
[illegible] [illegible] exposed. Caustic fixed Alkali [illegible]
Copper [illegible]. The [illegible] acid alone [illegible] dissolves Copper
[illegible] Copper decomposes Alum & Sal. Ammon. [illegible]
[illegible] [illegible] metals, & [illegible] [illegible]
[illegible] combined [illegible] [illegible] combina
[illegible] [illegible] [illegible] quantity

[illegible] metal [illegible] specific gravities [illegible]
[illegible] methods of Gold & Copper [illegible] specific gravity [illegible]
[illegible] the mean gravity of [illegible] metals [illegible] that
of the lowest of them, & vice versa sometimes the same but
[illegible] the perfect metals are three viz [illegible]
[illegible] Chemist [illegible] by Precipitation [illegible] solution
[illegible] the cause [illegible] known [illegible]
[illegible] specific gravity [illegible]
[illegible] time [illegible]
[illegible] person
[illegible] by [illegible] [illegible]
[illegible] attraction [illegible]
[illegible] & [illegible]
[illegible] Prussic, Succinic, Urine, Sorrel
[illegible] decomposed by Iron. Sorrel
[illegible] acid dissolves [illegible] lime
[illegible] with the Bitumens
[illegible] from the Alkali of Marine
[illegible] & the resins of vegetables. Embrio
[illegible] impregnated with mineral, Marine, or fossil
[illegible] Calcareous, [illegible] vegetable acid. Coal &
[illegible] the effect [illegible] intermixed with
[illegible] caustic [illegible] Distillation, made [illegible]
by the [illegible] time: [illegible] Coal is found in the heart
of the Earth, in [illegible] or [illegible] layers below the
[illegible] distinguished into Earth,
Stone [illegible] coal. Amber is a concrete substance, of a soft
[illegible] consistence like wax. It [illegible] in the Sp.
[illegible] Jet is a black Coal, the charry residuum of
[illegible] combustion. Quicksilver should be called Ret.
[illegible] solution of Iron in water [illegible] with

Vegetable acid, turns turnsol green & quite Prussian
blue with the Volatile alkali, Lime water dis-
solved with Prussian blue detaches the colouring mat-
ter by means of a little red lead, very rarely it's colouring
& the blue assumes the colour of red. A green tint
neutralized by the colouring matter & that none of the
regular saline salts. The phlogiston is unable to re-
precipitate in the Gall nut poison it from the acid & iron
in a coagulate state. This precipitation does not appear in an acid
solution, & disappears by the addition of an acid. The Iron
is precipitated here, because the astringent principle has
more affinity with the Vegetable than the alkali has.

Vegetables are organized substances with motion or sensibility
to the Gall & from Minerals in being nourished by in-
tus susception because they imparte the juices destined for
the nourishment of their bulk from the surrounding fluids
in which they are immersed & which they absorb. Vegetables have
inferior surface, & mostly lying in the superior surface
of their leaves. The different ~~parts~~ modifications of the
organs of Vegetation. Glandular secretions of Animals. Muta-
bility to the glandular secretions of animals. Muta-
bility of several exist. Contain. Earth & the
Case Alkali & the Extremes of the Vegetable & animal
kingdoms. Vegetable forms remain.
Vegetables are organized substances with motions or sensibility
to our organs & sometimes inflammable
inflammable that are generated. The animal & Vegetable
are composed of animal & vegetable matter
combustion, particularly the animal & vegetable
Exhaled with the air & the air & combustion & calcination

[illegible] [illegible] becomes more rapid & stronger in air atten-
[illegible] these Phenomena [illegible] of the [illegible] Plantarum.
Plants raised in darkness are white, insipid [illegible]
[illegible] nothing inflammable, & [illegible] the rays
of the Sun enter in Plants their colour, taste, & combustible
property. The humours of vegetables are twofold, common &
proper. The [illegible] not [illegible] fluid, it contains Salts,
Extracts & Mucilages. [illegible] [illegible] White
[illegible] heat, by filtration, [illegible]
[illegible] the Cruciform Plants. Extracts are divided
into Mucous, Soapy & Extracto-resinous. The first dissolve
in water & pass into the Vin. Ferment. The Soapy are dissolved
in water [illegible] they grow mouldy rather than
pass to the [illegible] ferment. The Extracto-Resinous dissolve in
water & the [illegible]. Terra Japonica is extracted from the
[illegible] the seeds of a kind of Palm. Extracts are resino-
[illegible] according as one or other prevails.
Essential Salt of Plants is a name given to the saline
substances dissolved in their juices or by the water of their infusion
[illegible] pure argilla & [illegible]
are [illegible] resembling the mineral Salts, the [illegible]
kinds are [illegible] from almost all plants
by maceration in acids. The Mineral is found in the Marine
Plants [illegible] from [illegible] Borrag. [illegible]
matter. 3 Sal. Glaub. from Tamarisk. 4. Nitre from Turnsol,
Tobacco & Borrag. 5 Sal. feb. Sylv. from Marine Plants. 6
Selenite from Rhubarb. Cruciform Plants yield vol. alkali
on the first impression of heat. 2. Those particular [illegible]
always formed of an acid united with an alkali & an Oil.
[illegible] distinguished into acid & sweet. The former are in

Sorrel & the acid crystals in the chemical acid salt of Sorrel. M. Bergman said it a vegetable alkali superabundantly with a particular acid. Acid of Sorrel decomposes Selenite. It, in fact Lime to the Alkali, in Spanish, Portuguese, French Tartar, Sugar, Tartar, Sorrel, & Citron acid are combines in Earths are almost insoluble, have a little lavance exists only. Not expensive not found in other acid in nature, & cheap. Earth & Earth. Earth & Earth combine the Alkali are almost insoluble. Chemical Vegetable Salts are soluble Water, but Earth, the Fixed Indigestible salt the most fixed. Salts & Sorrel crystallized. Acid, Water carried off salt or Chemical Tartar. Hydrocyanic the salt of Chem. Fixed Vegetable Alkali combines with the Mineral acid inflammable air, combines with the Mineral acid calcet more easily than with the Mineral acid. Nitrous gas constitutes the Nitrous acid combine with Nitrous gas constitutes the Nitrous acid. Manna is obtained from the Ash tree in Calabria & Sicily. It flows naturally, & by incisions in the bark. Fixed, distillation the same as Sugar. Gums or Mucilages burn without flame, are insoluble in water. Distillation a great quantity of acid Phlegm & little empyreumatic oil & some volatile alkali. Vegetable relin is every bulky contains vegetable alkali. Oils are broken juices fluid or solid insoluble in water combustible with flame. They are distinguished into fat & essential, fluid & concrete. Fat oils are chiefly with taste or smell. They require more heat than water. Boiling water to dissolve them. They are obtained by expression. They give distillation an acid phlegm of pungent odour. Light oil. Tar oil. Has a great inflammable air mixed with

[illegible] acid & the charcoal remains. [illegible] purified [illegible]
oil by taking away their mucilage, [illegible] whole [illegible]
property they owe their rancidity. [illegible]
[illegible] alteration in the composition [illegible]
[illegible] oil [illegible] contain [illegible] alkali [illegible]
[illegible] combine [illegible] form a kind of soap
[illegible] with [illegible] form [illegible]
[illegible] metallic [illegible] metallic [illegible]
which is chemically dissolved in these [illegible] the ca=
[illegible] decomposed by Æther which precipitates the mercury.
Essential Oils are got by expression from Bergamot,
Lemons Oranges &c. & by distillation. Exposed to the air,
they grow thick like Resin. Camphor is a concrete [illegible]
[illegible] substance. It is very volatile. Concentrated acids
dissolve it. the fat & essential oils dissolve it [illegible]
[illegible] Camph. it [illegible]
Boerhaave calls the Spiritus Rector [illegible] principle
[illegible] Rector & Essential Oil are inseparable. [illegible]
sui generis. Essential & distilled waters are solutions of
the Spiritus Rector. Balsams, & Resins are inflammable juices.
Balsams differ from Resins in [illegible]
[illegible] & in containing [illegible]
which [illegible]
[illegible] Benzoin, Balsam [illegible]
[illegible] Carthagena [illegible]. Resins are [illegible]
[illegible] pitch, Resin [illegible] Lacca
[illegible] Guaiac, [illegible]
[illegible]. Gum-Resins [illegible]
[illegible] they are Resin & [illegible]
partially dissolved by [illegible]

Gum Galbanum, Gum Ammoniac, Gum Guaiac, Gum Euphorbium, Myrrh, & Galbanum all of the same Class only in different degrees, differ from the Gums. Gum-resins are effected by Fire & Water like the Gums, & the Volatile part has been received in a mortar in a solution. Gum resins are not so soluble as the Gums, & leave more of the Residue, insoluble in the water. Resins are Brittle, Tenacious, & are chiefly used for Lacquer, separated from the sweet mucilaginous Gum of Gum growing in the Molucca. Copaiba is the Resin of Balsam growing in the East Indies. Farina is the Resin of Wheat growing in the West Indies. Farina resides in the Farinaceous seeds particularly Wheat, Rye, Oats, Rice, Indian corn & Pease in the Leguminous seeds. Wheat contains a vegetable animal or glutinous part, & a Resin & a mucilaginous saccharine part. The last causes the particular fermentation in Wheat & first is the most copious part of the Farina. The Glutinous part, forced to naked fire exhibits all the marks of animal substance; & yields by distillation the same Volatile animals or, viz. Alkaline Spirit, concrete volatile alkali, & an empyreumatic oil; but coal gives no fixed Alkali. Wheat, however, more copious than in the other Farinas. The following colours are resinous & soluble in water & Spt. Vini. but soluble in the Aqueous Acids, Radiant Citron, Green, Indigo & Blue & Violet yields cream of Tartar. Fluor Acid.

[illegible] Spirit.

[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
Iron
Copper
[illegible]

Silver.
Tart. Vitriol.
Sal. Immon. Vitriol.
Sal. Cathart. amar.
Vitriol. alb.
—— viridi.
—— coerul.
Sp. Vitriol.

D. [illegible] Spirit.

[illegible]
[illegible]
[illegible]
[illegible]
Iron.
Copper
Silver
Water

Cauth. [illegible].
Sp. [illegible].

3. Earths &c.

Pure Fixed Alkali — Common Salt

Calcareous Earth — Liquor Shell

Sal. Ammon. fix

Volatile Alkali — Sal. Ammon.

Fixed Vegetable Alkali — Sal. Digest.

Regulus of Antimony — Butter of Antimony

Silver — Luna Cornea.

Mercury — Merc. corr. sub.

Lead — Plumb. corneum.

Water — Lib. fixed.

4. Fossil Acid.

Pure Vegetable Acid. Pot. Tart.

Volatile Acids. Spirit. Sal. Ammon.

Magnesia

Lead — Pot. Tart.

Copper — Cupr. Vitriol.

Water Vinegar

[illegible] Tropfen Flüchtige Alkali.
[illegible] Tropfen Fixe Alkali.
[illegible] Tropfen Erde.
[illegible] Tropfen Salz Digest.
[illegible] Tropfen Salz Digest. Tartarisgeneral.
[illegible] Tropfen Mild Fixer Alkali.
[illegible] Tropfen Flüchtige Alkali
[illegible] Tropfen Sal. Ammon. Tilbiel.
[illegible] Tropfen Vitriol.
[illegible] Tropfen Comp.
[illegible] Tropfen Digest.
[illegible] Tropfen Mild Flüchtige Alkali.

[illegible] Tropfen Fixe Alkali.
[illegible] Tropfen Erde.
[illegible] Tropfen Salz.
[illegible] Tropfen Salz Tartarisirt.
[illegible] Tropfen Comp. Salz.
[illegible] Tropfen Digest. Tartarisirt.
[illegible] Tropfen Mild Fixer Alkali.

8. Calcareous Earth	9. Earth of Magnesia
Vitrifiable Fossil	Selenites Fossil	Vitrifiable Fossil	Epsom Salt
Mineral Fossil — Nitre.	Mineral Fossil —
Marine Fossil — Liquid Shell.	Marine —
	Vegetable —
Fossil	
Fossil Air	Lime	Fixed air — Fossil.
Water	Lime Water.

10. Metals	11. Phlogiston
Metallic Fossil	Fossil Phlogiston or
Fossil —	Fossil Sulphur
Fossil —	Volcanic Sulphur
	Metallic Calcs	Metal
Metal	

12. Silver

Red. Vitriol Hepar. Calch.

Corrosive Sublimate

Vol. Alkali

Iron

Reg. of Antim. Antimony.

Metallic Cinnabar

13. Red. Ir

Calcareous Earth. Chalk, Lime.

Calx Magnesia

Magnesia

Volatile Alkali

14. Water

Spt. Vin.

Vol. Alkali. Fixed. Alkali.

15. Pure Air

Phlogiston. Phlogiston.

Fire

Iron ores. Minerals.

[illegible] are the [illegible] substances viz. Iron, [illegible] Copper, Tungsten, Lead, Manganese, Bismuth, Antimony, Cobalt, Nickel, Regulus of Antimony, Regulus of Bismuth, Cobalt, Nickel, Regulus of Manganese, Quicksilver, Zinc, Arsenic, Molybdena. These are all soluble in the Nitric or Muriatic acids, but from [illegible] in some degree by the concentrated Sulphuric acid. Cinnabar (Sulphuret of Mercury) by the Prussian Blue. Cinnabar is used for Pencils. Its tests are [illegible] fire with steel. Its insoluble residue [illegible] & contains [illegible] [illegible] & [illegible]. Its solubility in [illegible] & open fire, leaving only a little [illegible] residue, & a few grains of [illegible] indistinguishable from all other [illegible] being precipitated from its solution by [illegible] Ammonia. Its soluble only in Nitric or [illegible] Muriatic acid. Colour [illegible] hardness, brittle, & steel grain of a bluish green colour. Its specific gravity at 17.700. Its fusibility is [illegible] copper. Its salt melted with Borax, or [illegible] White Silicious sand, gives a blue [illegible] [illegible] soluble in Nitric, Muriatic, [illegible] Sulphuric acid, & scarcely in the [illegible] The salt is more easily deflaved [illegible] [illegible] even to the acetous Nitric [illegible] [illegible] of great [illegible] [illegible] magnetic [illegible] [illegible] Its fusibility is nearly [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]

[illegible] Iron discovered no effect
[illegible] Manganese [illegible] acetic [illegible]
[illegible] fulminating [illegible] always [illegible]
[illegible] surface [illegible] not to be expected [illegible]
[illegible] in nitric acid, [illegible] in a
[illegible] brown powder. It is [illegible] in acids
[illegible] readily in the Nitrous. [illegible]
[illegible] Phlogiston necessary to its
[illegible] form more readily than any other
[illegible] substance. Manganese seems
[illegible] joined in the earth most usually
[illegible] the bluish or greenish colour of calcin
[illegible] the alkali is owing. It principally
[illegible] in cast Iron, & the ores of gold & iron
[illegible] calx. [illegible] resembles Plumbago. It
[illegible] entirely volatile, & infusible in any
fire. It [illegible] Lyno acid, but the Nitrous [illegible]
col. [illegible] to the existance of [illegible] the
[illegible] accessible with the Iron [illegible]
[illegible] produces Mola Boena. Margarine
[illegible] Iron. Rozolanites iron porosity [illegible]
[illegible] & water. Tungstein ~~[illegible]~~ a calc
[illegible] earth, & contains Iron & an acid. Minerals
[illegible] ~~[illegible]~~ [illegible]
[illegible] Metals, semimetals, [illegible]
[illegible] they [illegible]
[illegible] Primitive Kingdom.
[illegible] 1. Calcareous, 2. Magnesia or Muriatic [illegible] 4. Argillaceous 5. Silicious. Calcareous earth when pure
[illegible] lime. Combined with all acids, [illegible]
[illegible] Gypsum or Selenite. In its
[illegible] 180 Fahr. Specific
[illegible] water to [illegible] it. Specific gravity about 2,3.

It is a very Curious fact, that the earths, which are the most difficult to be reduced, and which require the strongest heat to melt them, are those which are the most easily precipitable from the Acids, by the Alkalies, or by the Ammonia. Alkali, or Alkali, separates it from other earths, Glucinum, Crystalline quartz, or vitrifiable earth, Zirconia, or a noble Metal. Mr. Lavoisier says a pound of Alum contains 3 oz of Pure 33 pounds of Pot Ash afford only 3 drachms, and Mr. Bergman found the ashes of some vegetables to contain calcareous, Barcitic, Argillaceous, & Siliceous earth, also some animal earth i.e. Phosphoric Salts. Mineral earth is much the most prevalent. Mr. Lavoisier found the ashes of some vegetables to contain 95 percent of Calcareous earth. The Mineral acids are Aerial, Nitrous, Marine, Succinous, Phosphoric, Molybdic, Boracic, & Tungstenic. The Nitrous and Marine are properly Mineral acids, however, since they are formed, the satisfaction of Chemists is settled by experiment. Neutral salts are formed when an acid unites to either an alkali, or a Metal. The Nitrous acid is never disengaged from all bases except in a strong heat, but always unites with earths or earth. The Tungsten acid is found in the calcareous stone called Tungstein. Argillaceous is not precipitable from its Marine acid by the acid

whereas all [illegible] are Calcareous Earths are calcareous stones in the form of animal or vegetable substances.

[illegible] colour [illegible] particulars [illegible] part [illegible] from [illegible] when mixed are to be [illegible] a dose to the [illegible] of the mixture [illegible] of the [illegible] mixed liquor, add whitening to about the acid, [illegible] in a few days. The addition of a little [illegible] will preserve it for some days in its blue state, but [illegible] of acid it may be kept for a considerable [illegible] to be neutralized with the whitening [illegible] the brilliancy of Gold induced by its mixture with [illegible] the Arsenic in the Nitre, yet 12 grains of regulus of Arsenic, reduced into as many ounces of fine Gold, will render it totally unmalleable. Thos Thorne.

[illegible] says the alcalies decidedly preferable [illegible] from the [illegible] Marine Acids. Lime water [illegible] recommended for purifying Marine acid from the [illegible] not [illegible] always contaminated. The Mass of Terra Ponderosa [illegible] combination with Fixed air will not encrease [illegible] fixed air or burn into lime. The [illegible] water, [illegible] common lime cannot unite to fixed air, without the [illegible] of moisture, no mixture may be an equivalent [illegible] for the decision.

Calcareous Earth	
Sorrel	
Oxalic acid	
[illegible]	
[illegible]	

Journal Remarks

Margaret employed in Gathering for
[illegible] or coloring the flight of [illegible]
in a solution of the Sculptures by having a
[illegible] action of water or [illegible]
[illegible] by the [illegible] or
[illegible] force or thoughtlessness &c.

A Gyroscope is prepared by arranging an
[illegible] three parts fitted with [illegible]
or [illegible] the [illegible] is [illegible]
[illegible] & [illegible] towards each; the [illegible]
[illegible] to a [illegible] fixed [illegible]
this object is placed in a crucible & [illegible]
[illegible] it is heated until a blue flame issues out
of the mouth of the ~~[illegible]~~ vessel, & when it
has burnt for some minutes, the crucible is
taken from the fire, & left to cool. The
[illegible] which it contains is poured into
a vessel that completely excludes the air. If it
[illegible] be exposed to the air, it soon takes
fire, in proportion to the greater or less moisture
of the Atmosphere. Combustion is promoted
by directing a moist vapour at, that is, before
it is [illegible]. The [illegible] must also be
completely, without this precaution, or rather
the fire by the air. It gradually
[illegible] heated to a red heat & combustible, which may
by [illegible] calination. When [illegible]
[illegible] is completely [illegible]
[illegible] so [illegible]

[illegible] Virginia [illegible] Hanover, [illegible] of Accomac giving the following Medical [illegible] possible affording the Sick [illegible] relief & comfort the [illegible]

[illegible] Peace necessary of the Street [illegible] Dr. Calomel or Dr. Vermon [illegible] Dr. Calomel or Dr. Vermon [illegible] Virginian carry procure [illegible] of making sweet Mercury, or Equal [illegible] Mercurius Dulcis. Fort. are mixed together [illegible] Natural, which is to be placed in [illegible] the Heat raised till it nearly [illegible] Boiling or Fever heat, then Bind [illegible] for 20 minutes. In this matter [illegible] [illegible] of Salt which is also a Bad [illegible] being taken to keep the mixture [illegible] Mercurius, till the whole addition [illegible] [illegible] the precipitate settles, the clear [illegible] is to be decanted off, & the precipitate [illegible] hot water, till the water comes off [illegible] the proportion of the Ingredients is [illegible] very nearly, Common Salt 3 parts, Water 40 parts. The precipitate thus [illegible] the properties of the Mercury. It is perfectly insipid, & also gives [illegible] colour with caustic alkali & lime water [illegible] common sweet mercury, & mixed with [illegible] anger. viz. It takes up none of it, & [illegible] [illegible] than any that can be made from [illegible] common sublimed calomel in any [illegible] [illegible] way.

[illegible] 15

[illegible] do. 8

[illegible] do. 2.

iron do. 25.

100.

[illegible]

[illegible] found by reviving the [illegible]

[illegible] but [illegible]

[illegible] real [illegible]

[illegible] real which [illegible] the [illegible]

[illegible] water [illegible]

[illegible]

[illegible]

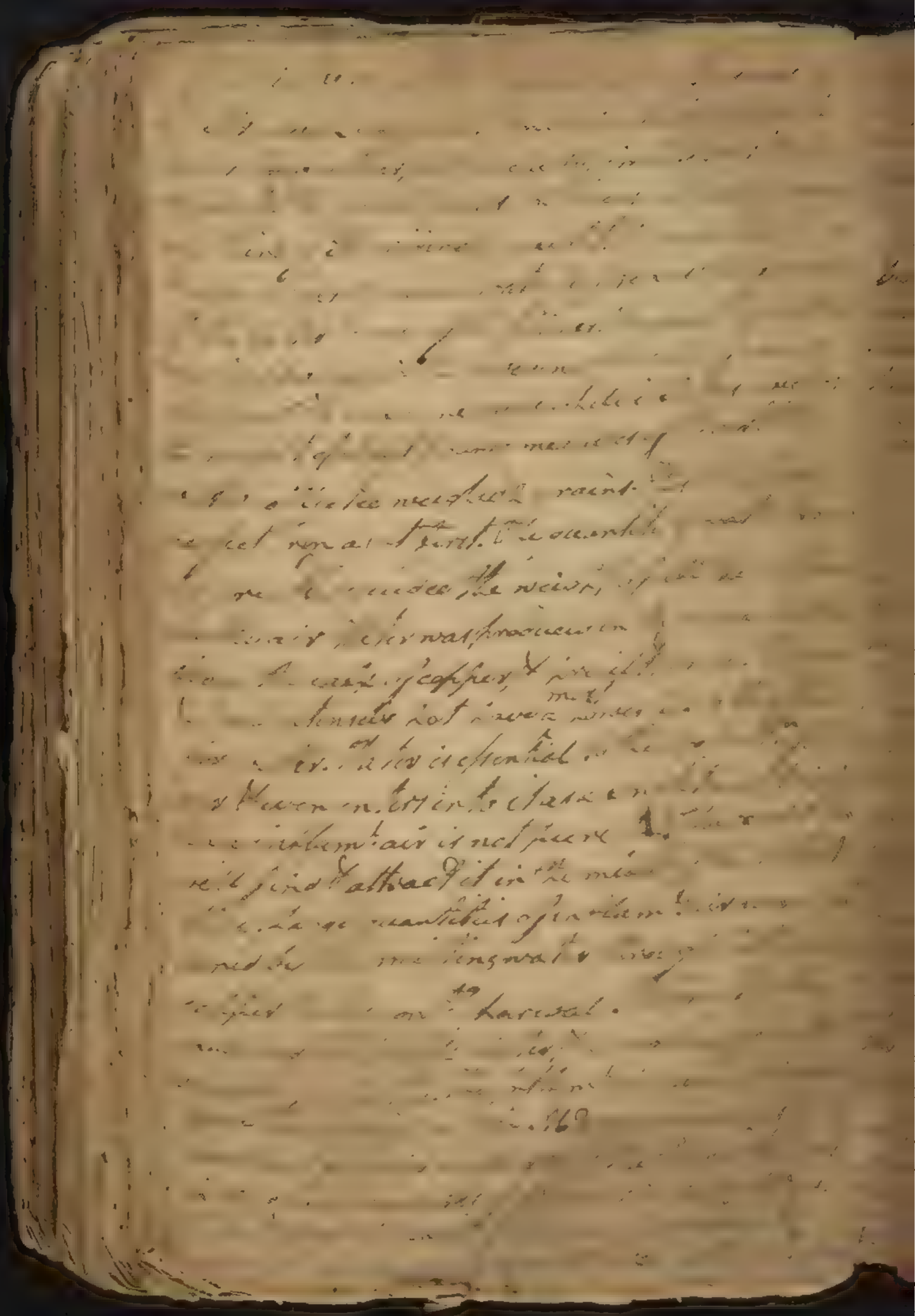
[illegible] into combustion [illegible] 218 [illegible]

[illegible] all the Dephl.d Vitriolic [illegible] [illegible] in the [illegible]

[illegible] water [illegible] dephl.d air [illegible] Dephl.d air obtained from the pure calces [illegible] themselves attracting [illegible] from the atmosphere, or from [illegible] known to contain [illegible] of Sulphur [illegible] water [illegible] in that form [illegible] liquid state. One [illegible] Phosphorus melted 62 [illegible] 185° of heat [illegible]

[illegible] steam [illegible]

[illegible]



[illegible]

[illegible] paint [illegible]

[illegible] the quantity [illegible]

[illegible] under the water, [illegible]

[illegible] water from [illegible]

[illegible] copper, & [illegible]

[illegible] not [illegible]

[illegible] essential [illegible]

[illegible]

[illegible] air is not pure [illegible]

[illegible] attracted it in the [illegible]

[illegible] quantities of [illegible]

[illegible]

[illegible] on the charcoal.

[illegible]

[illegible]

[illegible] yield by the commission of the [illegible]

[illegible]

[illegible]

[illegible] from the earth [illegible]

[illegible] same substances in all respects [illegible]

[illegible] water saturated with steam, & mean

[illegible] instantaneously [illegible]

[illegible] air since air is more [illegible]

[illegible] more elastic [illegible] capable of [illegible]

[illegible] from earth, non unanimous [illegible]

[illegible] in acids, which was [illegible]

[illegible] acetous acid [illegible]

[illegible] acid was for [illegible]

[illegible] met [illegible]

Bergman's Essays

[illegible] concerning [illegible] because more, but [illegible]

[illegible] a posteriori [illegible] observation.

[illegible] be [illegible] preconceived [illegible]

[illegible] most [illegible] in [illegible]

mentare [illegible] of [illegible]

[illegible] only really known by [illegible]

[illegible] lime & the [illegible]

[illegible] compounds. [illegible] chalk [illegible]

precipitated [illegible] alkali, the precipitate [illegible]

[illegible] burned & slacked for [illegible] soluble in water

[illegible] in acids. [illegible]

[illegible] a [illegible] alkali [illegible]

[illegible] dissolved metal [illegible]

[illegible] volatile alkali in certain cases, [illegible]

[illegible] than the caustic [illegible]

[illegible] occasion only a greater or less [illegible]

mineral [illegible] yields [illegible] acid [illegible]

[illegible] more than [illegible] unexpected

[illegible] convenient [illegible]

[illegible] mixture [illegible]

[illegible] of [illegible]

[illegible]

[illegible] as well as [illegible]

[illegible]

[illegible]

[illegible] should be [illegible]

[illegible]

[illegible] much more estimable than [illegible]

[illegible] preventd from [illegible]

[illegible] Balsam, which [illegible]

[illegible]

[illegible] the more [illegible]

[illegible] can be [illegible]

[illegible]

The land demonstrated fixed alkaline salts also [illegible]
[illegible] earth elude the force of all the acids but [illegible]
[illegible] dissolve the metals with water [illegible]
[illegible] fixed air. Olive oil absorbs an equal [illegible]
[illegible] more difficultly combined with fire [illegible]
[illegible] of oils is owing to dissipation of fixed air, [illegible]
restoring it. Iron as well as pure [illegible] alkali [illegible]
[illegible] recommended by fixed air. Lime fixed also all the other [illegible]
from menstrua. Silver dissolved in [illegible] more easily [illegible]
[illegible] than by caustic alkali. The fixed [illegible]
[illegible] union of fixed air with alkali is made more [illegible]
[illegible] concentrating & crystallizing. [illegible] fixed [illegible]
[illegible] fire. [illegible] the fixed fire generates [illegible]
[illegible] are resolved [illegible]
[illegible] vapour [illegible]
[illegible] smell [illegible]
[illegible] surface. [illegible]
[illegible] surface [illegible]
[illegible] surface [illegible]
[illegible] are [illegible]

[illegible] it is necessary to procure the
[illegible] are [illegible] fixed alkali [illegible] The [illegible]
[illegible] with [illegible]
[illegible] lixivia of Nitre, [illegible] refuse to [illegible]
[illegible] Magnesia dissolved in [illegible] acid [illegible]
[illegible] precipitation, evaporation [illegible]
[illegible] chrystallize [illegible] free from [illegible] earth.
[illegible]
[illegible] animal matter [illegible]
[illegible] acid of Phosphorus [illegible]
[illegible] with [illegible] ammoniac [illegible]
[illegible] distillation [illegible]
[illegible]
[illegible] then [illegible]
[illegible] Nitre but [illegible] with [illegible] acid of [illegible]
[illegible] sulphur than Phosphorus [illegible]
[illegible] from [illegible] Bergman says [illegible]
[illegible] they must be conducted in the [illegible]
[illegible] fixed air [illegible]
[illegible] emits its fixed air with care. [illegible]
[illegible] allowed to y elastic fluid. [illegible]
[illegible] air [illegible] combustible [illegible]
[illegible] intense [illegible] freezing [illegible]
[illegible] a few minutes [illegible] 60 [illegible]
[illegible] which [illegible]
[illegible] concentrated [illegible] acid [illegible]
[illegible] saturated with fixed air forms into chrystalls which neither
[illegible] in [illegible] times their quantity of water [illegible]
[illegible] chrystals of eight sides. Chrystallize
[illegible] alkali is always [illegible]
[illegible] fixed air [illegible]
[illegible] the [illegible] fixed air it requires to saturate
[illegible] heat imparted to water [illegible]
[illegible] manner [illegible]
[illegible] fixed air [illegible]
[illegible] soluble [illegible]
[illegible] distilled water [illegible]
[illegible] magnesia. [illegible]
[illegible] alkali [illegible]
[illegible] air [illegible] Δ [illegible]
[illegible] water [illegible]
[illegible] solution [illegible]
[illegible] fixed air [illegible]
[illegible] pure alkalis [illegible]
[illegible] air immediately [illegible]
[illegible] smoke [illegible] a long time [illegible]
[illegible]
[illegible]
[illegible]
[illegible]

Mrs Aikin, White & Goulard maintain the innocence of the external application of preparations of Lead. Dr Percival & Sr Baker believe that Lead sometimes produces its specific effects upon the body. Dogs, Cats, Horses, Cows, Poultry, Birds, & Fish are Subject to the disease with Colic, constipation convulsions & Madness & marasmus by receiving Lead in any form into their bodies: they are greedy of it to excess. The vapours of Lead in smelting furnaces, & the waste from them carried in the grass, [illegible] produce Colic. The common is cured by a vomit, laxatives, & occasionally Ol. Ricini is the best. Alum is very good both as a Prophylactic & remedy in the Colica Pictonum, [illegible] gr. [illegible] 5 vel 6ta hora [illegible] mostly proves gently aperient. Advantageously combined with Gum Arab or Sperma Ceti, [illegible] silence, [illegible] improves the appetite, & strengthens the organs of digestion by its immediate action on the nervous tone [illegible] the morbid irritability of the intestines. [illegible] when affected with the Asthma finds an efficacious & speedy remedy in the mephitic or fixed air arising from the calcination of Lime Stone. [illegible] Men employed in the mining [illegible] are remarkable for their health & longevity. [illegible] boil their meat on Pigs of hot Lead which gives them a very agreeable flavour. [illegible] [illegible] in the [illegible] [illegible] of [illegible] [illegible] [illegible] [illegible]

[illegible] water renders [illegible] black. [illegible]
[illegible] contained [illegible] Lead [illegible]
[illegible] ingredient in the glazing
[illegible] Burslem [illegible]. [illegible] Lead [illegible]
[illegible] & diminishes [illegible] rendered all of
[illegible] by agitation in water [illegible] obtained from the
[illegible], & semimetals [illegible] the [illegible] lead. [illegible]
[illegible] is added to [illegible] the [illegible]
[illegible] neutral [illegible] bulk
[illegible]
[illegible] like inflammable [illegible] no chemical
[illegible] no such change produced. Lead white
[illegible] Lead [illegible] made
[illegible] & minium [illegible] common [illegible]
[illegible]
[illegible] to the [illegible] People affected with this
[illegible] Lead are troubled with [illegible]
[illegible] constipation & palsies. Litharge is
[illegible] more volatile than Lead & the vapour from it [illegible]
[illegible] gutta serena & Paralysis were the con
[illegible] of the fumes of Lead. [illegible] & Hoffman [illegible]
[illegible] affected with syncope, anxiety, vomiting,
[illegible], dyspnoea, tremors & suffocation, by the fumes
of Arsenic. [illegible] employed in the smelting mills, as well
[illegible] animals exposed to the [illegible] of Lead are
[illegible] with the Belland which [illegible] under a
[illegible]. [illegible] in the [illegible] the fluxing of

[illegible]
[illegible]
[illegible] 5½
[illegible]
[illegible] 2

[illegible]
[illegible]
[illegible] 4
[illegible] 3½
[illegible] 4

[illegible] white
[illegible]
— [illegible] — 56½
— [illegible] — 42.

Fronte capillata, post est occasio calva.
Virtutem natura vace decori quam ingenio solet.
Principia sive matter of heat, or latent heat.

Cicero.